

RESPONSIVENESS SUMMARY

Hazardous and Solid Waste Amendments of 1984 (“HSWA”)

Permit Modification I

E.I. du Pont de Nemours & Company, Incorporated (“DuPont”)

Pompton Lakes Works (“PLW”)

Pompton Lakes, New Jersey

EPA I.D. Number NJD002173946

In this document, the Environmental Protection Agency (“EPA”) provides responses to comments received by EPA from the public during the public comment period related to the proposed Resource Conservation and Recovery Act/Hazardous and Solid Waste Amendments Act (“RCRA/HSWA”) permit modification issued by EPA on November 2, 2014 to select and require the implementation of remedies for the Pompton Lake Study Area (“PLSA”) in Pompton Lakes, New Jersey. After review of the information and reports underlying the permit modification provisions, and review of all comments it received during the public comment period, EPA determined that the corrective measures contained in the draft will remain unchanged in the final Permit Modification. The final Modification text contains only grammatical and clarification changes from the draft Modification text. For ease of reference, acronyms used in this Responsiveness Summary are listed on the final two pages of the document.

The PLSA includes three general areas: (1) the portion in Pompton Lake (i.e., lake sediments) termed the Acid Brook Delta (“ABD”); (2) the portion of Pompton Lake (i.e. lake sediments) between Lakeside Avenue Bridge and Pompton Lakes Dam that is outside the ABD; and (3) the uplands portion defined as the soils between Lakeside Avenue and the water's edge along the lake (including wetlands and wetland transition areas) and called the "ABD Upland Soil Areas". The ABD lake sediments include the portion of Pompton Lake south of the Lakeside Avenue Bridge, east of the discharge point of Acid Brook into Pompton Lake, and west of the centerline of the former Ramapo River channel as well as two additionally identified areas termed Area A and the Island Area.

The proposed permit modification has generated significant public interest in the Pompton Lakes, New Jersey community. EPA has conducted information sessions, public meetings, and attended Community Advisory Group (“CAG”) meetings. Other methods of outreach have also been implemented including: (1) issuance of a periodic newsletter; (2) weekly availability (since November 2013) of EPA’s Remedial Project Manager and Community Involvement Coordinator at the Pompton Lakes Municipal Building to answer questions/respond to concerns of the

community; and, (3) meeting with various civic/local groups to provide status updates regarding the progress of environmental clean-up activities at DuPont PLW.

DuPont originally submitted a permit modification application in April 2011. On December 19, 2012 the EPA issued a Permit Modification I of the HSWA Permit to DuPont for the PLW. The permit modification concerned remediation of the ABD sediments and the adjacent upland area of Pompton Lake as well as other requirements.

Before the permit modification became effective, DuPont and the Passaic River Coalition each timely filed petitions for its review with the EPA's Environmental Appeals Board ("EAB") pursuant to 40 C.F.R. § 124.19 (a). By Order of the EAB, the appeals were stayed from February 2013 until April 2014 while EPA, DuPont and the Passaic River Coalition attempted to resolve the issues raised in the appeals. After consideration of all aspects of the matter involved in the permit appeals, pursuant to 40 C.F.R. § 124.19(j), EPA withdrew the Permit Modification I in its entirety on April 30, 2014. During and subsequent to the appeal period, DuPont performed additional investigative work to supplement previous data collected with the respect to the PLSA.

There are supporting documents for the proposed permit modification. DuPont prepared and submitted the remedial investigation report for the ABD, dated December 19, 2008, the Remedial Investigation Report ("RIR") for Pompton Lake Uplands, dated June 30, 2010, ABD Area Remedial Action Selection Report ("RASR")/Corrective Measures Study ("CMS"), dated September 18, 2009, the ABD Area Revised Corrective Measures Implementation Work Plan ("CMI WP"), dated September 2011, the 2013 Sediment Sampling Plan, dated July 2013, the Technical Memorandum: Updated Conceptual Site Model dated March 2014, the Technical Support for Selection of Additional Sediment Removal Areas dated October 2014 and the Technical Support for Acid Brook Delta Upland Soil Areas dated October 2014.

The permit modification process has included the following events:

- The Public Notice of the draft permit modification was published on November 2, 2014 in the Suburban Trends newspaper.
- EPA held a public availability session on the draft permit modification at the Carnevale Center, Pompton Lakes, New Jersey on November 12, 2014.
- The public comment period started on November 3, 2014 and ended on February 2, 2015.
- A public hearing was held at the Carnevale Center, Pompton Lakes on December 8, 2014. A written transcript of the public hearing can be found at EPA's website at:

http://www.epa.gov/region02/waste/dupont_pompton/additionaldocs.html

In total, there were nearly 100 comments made during the public hearing and by submission to EPA during the public comment period. In addition, there were many comments made to EPA

during the November 12, 2014 public availability session, which approximately 50 people attended.

Though all comments and information received by EPA during the November 12, 2014 public availability session and the December 8, 2014 public hearing were reviewed and considered by EPA, those comments determined by EPA to be significant in relation to the permit modification are addressed in this Responsiveness Summary, as provided in 40 C.F.R. Part 270.42(c)(6). EPA has grouped all significant comments under topical headings as well as by those groups/organizations that submitted comments. Responses to comments are discussed below following a summary of the facility's permit and regulatory history.

Facility's Permit and Regulatory History

The DuPont PLW facility occupies approximately 570 acres of land, surrounded by mountainous areas to the north, Lake Inez (now drained) to the west and residential areas to the east and south. Two parallel valleys (Wanaque River and Acid Brook) run through the site north to south. Land use in the vicinity of the site is predominantly residential and commercial, but also includes undeveloped areas, an interstate highway (Route 287) and state-owned forest.

DuPont PLW conducted operations at the site from 1902 to April 1994, when the facility ceased its operations. Products manufactured included explosive powder (e.g., mercury fulminate and lead azide) and finished products (e.g., detonating fuses, electric blasting caps, metal wires, and aluminum and copper shells). The manufacturing operations and waste management practices resulted in contamination of the soil, sediment, and groundwater. The primary contaminants in the soil and sediments are lead and mercury. Groundwater contaminated with chlorinated volatile organic compounds ("VOCs"), such as perchloroethylene ("PCE"), trichloroethylene ("TCE"), cis 1, 2-dichloroethylene, and vinyl chloride, has migrated off-site from the Eastern Valley portion of the facility towards Pompton Lake. The New Jersey Department of Environmental Protection ("NJDEP") issued and administered permits under state regulations for the facility's operation and closure.

Soil and sediment contamination occurred off-site along the Wanaque River, which flows through the Western Valley side of the facility. Operations in the Western Valley ceased in the mid-1920's and relocated to the Eastern Valley side of the plant. Due to releases of lead and mercury to Acid Brook, soil along Acid Brook was contaminated. Acid Brook flows from north to south through the Eastern Valley and discharges into the ABD of Pompton Lake, resulting in contamination of the ABD sediments.

In 1988, DuPont entered into an Administrative Consent Order ("ACO") with the NJDEP. In 1992, EPA issued a corrective action permit to DuPont, under RCRA/HSWA. The NJDEP ACO and the EPA HSWA Permit required DuPont to conduct investigation and cleanup of contamination on and/or migrating from the site. The NJDEP ACO was amended to add The Chemours Company, FC LLC ("Chemours") as a party, effective February 1, 2015.

As a result of the RCRA Facility Assessment (“RFA”) conducted in 1986 and subsequent investigations, 202 solid waste management units and/or areas of concern (“SWMUs/AOCs”) were identified. The remedial investigation reports for the Northern Manufacturing Area, Western Manufacturing Area, and Eastern Manufacturing Area characterized the conditions at the 202 SWMUs/AOCs on- and off-site. The off-site SWMUs/AOCs include: the Wanaque River, Acid Brook, ABD, and the groundwater plume.

In addition to the RIR for the Northern, Eastern, and Western Manufacturing Areas, all three of which are dated June 30, 2010, there is the ABD RIR, dated December 19, 2008, the RIR for Pompton Lake Uplands, dated June 30, 2010, the ABD Area RASR/CMS, dated September 18, 2009, and the ABD Area Revised CMI WP, dated September 2011.

Between 1991 and 1997, Acid Brook was the subject of remedial efforts that included streambed remediation and excavation of floodplain soil. The cleanup of the PLSA sediments includes the ABD sediments, areas of concern identified in Pompton Lake and the ABD Upland Soil Areas which are the focus of this permit modification.

On February 1, 2015, DuPont transferred the PLW to Chemours FC LLC, which was organized as a wholly owned subsidiary of DuPont. On July 1, 2015 The Chemours Company LLC is scheduled to be spun-off as an independent company that is separate from DuPont. Chemours FC LLC will be a subsidiary of The Chemours Company, and will manage and operate multiple facilities formerly owned and operated by DuPont. EPA is processing a request that the EPA RCRA HSWA Permit, I.D. No. NJD002173946 be transferred from DuPont to Chemours FC LLC to occur when Chemours is a separate company.

RESPONSES TO SIGNIFICANT COMMENTS RECEIVED FROM THE PUBLIC ON THE DUPONT HSWA PERMIT MODIFICATION

COMMENTS:

1. Borough of Pompton Lakes Support for the Permit Modification

The Borough of Pompton Lakes expressed support for the remedial work contained in the draft permit modification. A resolution (Resolution No. 14-244) of support was adopted by the Pompton Lakes Mayor and Council on December 10, 2014 and submitted during the public comment period. The resolution expressed official support for the permit modification and the remedial actions it contains.

2. General Support for the Permit Modification

There were comments that expressed support for the remedial work contained in the draft permit modification. In their expression of support, many of these commenters stated that the implementation of the dredging/removal project by DuPont presented in the draft permit

modification required oversight by EPA. A desire to move the project forward as quickly as possible was asserted in these comments.

In general, those commenters supporting the permit modification felt that performance of the remedy would improve the overall image of the community.

RESPONSE TO COMMENTS 1 AND 2:

EPA believes that the remedy proposed in the draft permit modification is supported by the scientific data collected and evaluated as part of numerous environmental investigations of the PLSA. These environmental investigations include surface water, sediment, and biota (e.g. fish, birds, amphibians and insects) as well as assessments of the physical characteristics of Pompton Lake (e.g. bathymetry and side scan sonar).

The proposed remedy in the draft permit modification is protective of human health and the environment. EPA's used a multiple lines of evidence approach (described in Response to Comment # 13 and further detailed in the technical documents used to prepare the permit modification) to establish areas of dredging/removal and incorporated a long-term monitoring plan to assess the recovery of Pompton Lake post-remedy. In addition, the Upland Soil Areas will be remediated and restored through removal and restoration pursuant to an EPA approved plan.

There will be continued EPA/NJDEP review and EPA approval of the technical documents submitted by DuPont pursuant to the permit modification requirements, as well as field oversight by EPA during the implementation of the remedy. EPA's goal is to have DuPont initiate the fieldwork required in the draft permit modification in 2015. It should be noted that investigation of mercury contamination in the river sediments along the three miles between the Pompton Lake Dam and Riverside Park in Wayne, New Jersey is being carried out by DuPont under the original EPA RCRA/HSWA permit and are not part of this permit modification. Any remedial action that may be determined to be necessary will be incorporated in a future permit modification that will be subject to public review and comment.

COMMENT:

3. Opposition to the Permit Modification

There were commenters who opposed the permit modification based on the scope of dredging, characterizing the proposed remedy as a "piece-meal" approach or "partial" clean-up versus a "complete" or "comprehensive" clean-up. Commenters questioned limiting dredging/removal of contaminated sediments to the 36 acres in the ABD and two additional areas identified as Area A (0.5 acres) and the Island Area (2.5 acres). Many of these comments called for the entire lake to be dredged. Various reasons were cited for this concern including: the potential for recontamination of the project area, unacceptable risks associated with mercury present in sediments in the remainder of Pompton Lake, the potential use of Pompton Lake as a drinking water source, the potential for remobilization of contaminants and sediments from the lake bed.

RESPONSE:

Exposure of aquatic organisms and water-dependent birds and wildlife (i.e. ecological receptors) to contaminated sediment is directly dependent on the contaminants and sediments being physically and chemically available to those organisms. Contaminated sediments at the surface of the lake bottom are physically located to make them more available to organisms than are contaminated sediments buried at depth. The depth of overlying water and proximity to shore are other important factors that determine the degree to which avian and wildlife species may be physically exposed to contaminated sediment. In addition, the chemical form in which the contaminant is present is also very important in determining exposure. In the case of mercury, the organic (i.e., methylated) form is far more available for uptake by organisms (and is also significantly more toxic) than inorganic forms of mercury.

Sediment characterization sampling, surface water sampling, sediment toxicity testing, biota sampling and analysis, and bathymetry and side scan sonar data were utilized in a multiple lines-of-evidence approach to evaluate exposure and assess potential risk to ecological receptors in the PLSA. Surface sediment (0 - 6") mercury concentrations in the ABD are significantly higher than elsewhere in Pompton Lake. In addition, ABD sediments also meet all of the other factors outlined above that increase risks – shallow overlying water, proximity to shore and a greater percentage of mercury present in its organic form (methyl mercury). Accordingly, contaminated sediments in the ABD present the greatest mercury risk in the Pompton Lake system and their remediation is the highest priority.

While remediation of the ABD is the highest priority for remediation of Pompton Lake, the investigations performed evaluated other areas outside of the ABD that are within the PLSA. Utilizing the aforementioned multiple lines of evidence, EPA determined that remediation of Pompton Lake will not be limited to dredging the 36 acres of contaminated sediment in the ABD. Two additional areas were identified: Area A and the Island Area.

With respect to Area A, elevated subsurface total mercury concentrations in sediment and the potential for a decrease in bed sediment elevation (i.e. an erosional area) were important considerations in assessing additional sediment removal. Sediment removal in Area A will reduce the potential for future exposure to sediment that may contain elevated total mercury concentrations which could be in a near shore environment where methylation has the highest potential to occur.

Concentrations of methyl mercury in exposure media sampled adjacent to the Island Area were slightly elevated relative to other areas of Pompton Lake outside of the ABD. Methyl mercury concentrations in sediment, pore water, larval and adult midge tissues, and spider tissues, were in the upper range of concentrations measured in Pompton Lake outside of the ABD. These findings indicate that the shallow, near-shore depositional sediments with increased sediment total organic carbon and acid volatile sulfide concentrations that surround the island may be favorable to mercury methylation. The reduction of methyl mercury concentrations will reduce the potential for methyl mercury exposure to fish and wildlife that may forage in the vicinity of the island. Sediment removal to reduce total mercury concentrations in potentially favorable conditions for methylation will also

reduce the overall area of ecological exposure to elevated mercury concentrations in sediment within the PLSA.

In terms of “completeness” of the remedy as it pertains to assessing potential sediment contamination in the Ramapo River and Pompton River from the Pompton Dam approximately three miles downstream to Riverside Park in Wayne: DuPont has performed a riverbed substrate mapping survey and sediment characterization sampling based on its Ramapo River/Pompton River Substrate Characterization Memorandum, DuPont Pompton Lakes Works dated February 2014, which was approved by EPA and NJDEP in July, 2014. The objective of the work is to determine how far downstream mercury might have migrated. The results of this work will be analyzed and reported to EPA and NJDEP by DuPont, and are not part of this permit modification. The extent and nature of remedial work in this area, if any, will be subject to a separate permit modification. EPA concluded that the approach of moving forward with the PLSA remediation rather than waiting for the results of the aforementioned investigatory work and its results advances the progress of the environmental clean-up in the most efficient manner since any sediment remediation required in the Ramapo River and Pompton River from the Pompton Dam approximately three miles downstream to Riverside Park in Wayne can be performed as a discrete, separate phase of work.

EPA believes that removal of soil and subsequent restoration of the ABD Upland Soil Areas, the dredging of the expanded ABD as well as Area A and the Island Area will serve to minimize the potential for redistribution of mercury in sediment onto remediated and downstream areas while reducing mercury exposure to fish, wildlife, and humans in the PLSA. Implementation of the remedy is expected to remove sediments with the highest potential to produce methylated mercury which will reduce the potential for further mercury methylation in near-shore sediment and reduce the area of exposure of ecological receptors to elevated mercury concentrations in sediment.

The design and implementation of the Remediation and Restoration Plan for the ABD Upland Soil Areas, subject to EPA approval, and consisting of a combination of remediation (including removal and engineering controls) and restoration at the ABD Upland Soil Areas, will ensure that the ecological exposure pathway will be adequately addressed.

In conjunction with the dredging/removal within the PLSA, the permit modification also requires DuPont to develop and implement a Long –Term Monitoring Program (“LTMP”). The LTMP will be designed to measure key indicators of the overall condition of the PLSA over a five year monitoring period. The LTMP will be used to evaluate the PLSA ecosystem as a result of the removal of mercury sediments with the greatest potential for methylation. The results of the initial five year monitoring period will be utilized to further assess the completeness of the remedy (i.e. whether it meets the remedial action objectives set forth in the permit modification) and determine the scope of further remedial action (if required) and/or any changes to the monitoring.

The LTMP will include clearly defined data quality objectives consistent with EPA quality management guidelines as part of its Quality Assurance Project Plan, Health and Safety Plan, and a field sampling plan that, at a minimum, contains the following monitoring elements: surface water, sediment, sediment pore water, young of year fish tissue, adult fish tissue, larval insect tissue, emergent insect tissue. The conceptual framework and details for the study

design/sampling approach, types of chemical analyses and biological samples, and frequency and location of samples will be provided in the LTMP.

While the need for additional remediation beyond the actions specified in this permit modification cannot be definitively determined until the remedy and the LTMP are implemented, EPA believes its approach addresses the most significant risks within the PLSA and reduces the scope of any additional future remediation that may be deemed necessary.

COMMENT:

4. Comments from DuPont

DuPont (“the Permittee”) submitted comments concerning the draft permit modification. The comments stated that the Statement of Basis for the proposed permit modification and technical support documents relating to the proposed corrective measures describe a robust scientific database. The comments further stated that DuPont believes the scope of the proposed lake dredging and upland soil removal are appropriate for the site. The DuPont comments noted a procedural concern it had identified in the draft permit modification relating to the Permittee obtaining, if necessary because of the time required to accomplish adequate consultation with NJDEP and the United States Fish and Wildlife Service (“USFWS”), a time extension for submission of the CMI WP. The comments also noted concerns that the Permittee expressly be provided an opportunity to consult with EPA prior to EPA issuing any required modification to the CMI WP (or other plan requiring EPA approval). Further, DuPont expressed the view that it should have an opportunity for review of any modification(s) to the CMI WP (or the Work Plan for the Uplands Soil Areas) it might believe to be improper. DuPont also noted a grammatical error in the third paragraph of Section E.1.d. in the draft permit modification, which concerns the LTMP.

RESPONSE:

The draft permit modification requires that within 90 days of the effective date of the final permit modification, the CMI WP will be submitted to EPA. DuPont’s concern is that this timeframe is tied to the requirement that the Permittee coordinate with EPA, NJDEP and the USFWS prior to such submission, and that the time required to accomplish the coordination might prevent timely submission of the draft CMI WP. DuPont requested language in the permit module that allows EPA to extend the timeframe if requested by DuPont. EPA notes there is an existing provision in the EPA RCRA/HSWA permit for the facility, Module III E. 10 a., which provides that the Permittee can make a request in writing to EPA to extend a compliance schedule if the Permittee determines that the schedule cannot be met. (This permit modification is incorporated into the RCRA/HSWA permit for the facility, and its terms apply to requirements contained in the modification.) If a request is made by the Permittee for a time extension of a required submission under the permit modification, EPA will review the explanation supporting the request and grant an extension if it deems the request reasonable under the circumstances. No change to the language in the permit modification is required, since the RCRA/HSWA permit provides an applicable procedure covering the matter.

DuPont also expressed concern about its ability to discuss proposed EPA modifications to the CMI WP based on EPA and NJDEP review. Where EPA and NJDEP have provided comments on technical deliverables, there has typically been dialogue regarding those comments resulting in resubmittal of the technical deliverable that is then approved by EPA after NJDEP review.

EPA will ensure that the Permittee is provided an opportunity to consult with EPA prior to EPA issuing a final decision to modify a work plan or other submission. No change in the permit modification language is required, and the Permittee can rely upon EPA's assurance that it will have an opportunity for appropriate consultation with EPA.

The existing base RCRA permit for the facility in Module I. M. provides a dispute resolution procedure, which the Permittee can invoke if it believes an EPA decision on modifying a Work Plan (or other EPA decision or action under the permit) is improper or incorrect. The dispute resolution provision in Module I. M. provides due process for the Permittee that meets the standards established by the EAB. If a matter under the permit modification becomes subject to dispute resolution, the EPA decision in the matter will be made by an EPA Region 2 official to whom the authority to issue, modify and administer this RCRA permit is delegated and assigned, currently, the Director or Deputy Director of the Emergency Response and Remedial Response Division. Since the existing EPA RCRA/HSWA permit for the facility provides adequate due process for the Permittee, no additional provision or language is required in the permit modification.

The grammatical error in the third paragraph of Section E. 1. d. of the permit modification has been corrected by inserting the word "that" in the latter part of the sentence, so that it now reads ". . . and (2) develop baseline conditions of mercury bioaccumulation in fish tissue such that (emphasis supplied) significant increases in mercury exposure to fish or piscivorous wildlife can be identified."

COMMENT:

5. DuPont Spin-off of Chemours and RCRA Financial Assurance

There were commenters expressing concern about DuPont's announced transfer of the DuPont PLW facility to Chemours. Specific concerns were expressed related to RCRA financial assurance for the DuPont PLW including the amount of financial assurance, the type of financial instrument for DuPont's financial assurance, whether EPA would impose additional financial assurance to address risks associated with the newly formed company and whether the transfer of the DuPont PLW to Chemours could be stopped.

RESPONSE:

As described above (in the Facility's Permit and Regulatory History section), Chemours is scheduled to come into existence as an independent company on July 1, 2015. EPA is processing a request that the EPA RCRA permit for the facility be transferred from DuPont to Chemours.

Regarding the dollar amount of financial assurance for the DuPont PLW, there is not a specific dollar amount of financial assurance for corrective action at the DuPont PLW under the federal permit at this time, since the Permittee is not as yet required to provide such assurance. However, the Chemours Form 10 filing with the federal Securities and Exchange Commission contains an estimate of \$116 million for remediation activities at the DuPont PLW, of which \$60 million is estimated to be spent on remediation activities at the site in the next two to three years, including the dredging and other remediation activities contained in the proposed PLSA permit modification.

The DuPont PLW RCRA permit provides that financial assurance must be demonstrated to EPA for “approved” corrective measures. The permit modification contains corrective measures, including dredging within Pompton Lake and remediation of adjacent Upland Soil Areas, which will become “approved” measures when the permit modification becomes effective in final form. Within thirty days thereafter, the Permittee is required to demonstrate to EPA in writing that it has financial assurance for the approved corrective measures. The Permittee’s submission should contain a cost estimate for the required work, including post remediation care requirements, and identify the method the company selects to provide the assurance. Since the Permittee’s financial assurance submission for the corrective action has not yet been made, EPA cannot at this time evaluate the nature and content of the assurance. Under the permit, the Permittee is also required to provide financial assurance for the continued implementation of interim measures at the facility. To date, DuPont has been in compliance with the financial assurance requirements for interim measures.

The existing EPA RCRA/HSWA permit for the Pompton Lakes facility can be transferred to Chemours as the new owner when Chemours is a separate company. The permit change can be made through a Class 1 permit modification with EPA approval after its review of documentation that Chemours and DuPont submit. After a permit transfer, and after Chemours as the Permittee provides financial assurance to EPA, DuPont cannot be required to continue to separately provide financial assurance to EPA for the facility.

Note that a permit modification process, including a public comment period, will also be followed in the future to impose “approved” corrective measures related to the former manufacturing facility itself. The Permittee will also be required to demonstrate financial assurance for any corrective measures selected and approved for that area.

New Jersey also requires financial assurance for corrective measures at the Pompton Lakes DuPont facility pursuant to an existing State ACO. To date, DuPont has elected to provide this financial assurance through a corporate guarantee. New Jersey has added Chemours to the ACO, specifying its obligation after Chemours is an independent company to provide financial assurance for the corrective work at the DuPont PLW facility, including the dredging and related work covered by the proposed EPA permit modification.

With respect to whether EPA can increase the financial assurance requirements to address risks from the newly formed Chemours Company, the financial assurance under RCRA permits is

geared to the cost estimate for carrying out approved corrective measures, and is not adjusted either upward or downward based on any perceived “risks” associated with RCRA permittees. Regarding EPA’s ability to stop the transfer of the DuPont PLW to Chemours, matters concerning corporate organization and reorganization are under the jurisdiction of federal agencies other than EPA, and are also governed by applicable state law. Accordingly, EPA does not have a role in such matters.

COMMENT:

6. Comments from the Pompton Lakes Community Advisory Group (PLCAG)

This CAG provided comments on a number of topics related to the permit modification. In addition, comments were submitted by the PLCAG that were prepared by Chapin Engineering in two separate memos that pre-dated issuance of the November 2014 draft permit modification. Where relevant to the November 2014 draft permit modification, EPA has addressed those comments.

Responses to comments on the topics of concern to the PLCAG are provided throughout the Responsiveness Summary. To reduce redundancy, the PLCAG comments are provided below and a reference to the location where the response to the comment can be located is provided.

RESPONSE:

EPA Response to USFWS Comments

A response to USFWS comments is addressed in the response to comment #20.

Sources of Mercury

A response to comments regarding on-site sources of mercury, including air emissions as well as upstream sources of mercury impacting Pompton Lake is provided in the responses to comments # 10 and 11.

Proposed Dredging

Comments regarding the Upland Soil Areas clean-up and the use of a multiple lines-of-evidence approach to determining areas of dredging/removal in the ABD, Area A and the Island Area are addressed in the responses to comments # 10, 13, 15 and 20.

With respect to the comment noting a discrepancy between Figure 1 and the text regarding the total acreage of excavation of mercury impacted sediment; EPA was unable to identify such a discrepancy. Figure 1 in the Statement of Basis and Module III Supplement do not identify the specific acreage subject to dredging/removal. However, the correct total acreage, as identified in the permit modification is approximately 36 acres in the ABD, approximately 0.5 acres in Area A and approximately 2.5 acres in the Island Area.

Public Notification

Comments regarding public notification including fish signage, the posting of warning signs during remediation and the presence of an EPA on-site trailer for residents to visit to ask questions during the progress of the clean-up are addressed in the responses to comments #17, 18, 26 and 29.

Air Monitoring and Security

A response to comments regarding multiple air monitoring stations, site security and EPA oversight during implementation of the remedy is provided in the responses to comments # 17, 18, 19, and 26.

Truck Route

A response to comments regarding students at Lakeside Avenue School during the clean-up work and the establishment of a truck route is provided in the responses to comments #17, 18, and 19.

Hot Spots

A response to the comment regarding the use of a numeric mercury clean-up for the sediment is addressed in response to comment #13.

DuPont – Chemours Spin-off

A response to the comments regarding the DuPont spin-off of Chemours and RCRA Financial Assurance for Sediment Remediation is included in the response to comment #5.

Other Technical Reviewer Comments – Chapin Engineering

- **Background Conditions:** comments regarding clean-up of sediments exceeding background conditions, clean-up of the entire lake, age dating sediments within Pompton Lake and quantifying all sources of mercury that have/could have impacted Pompton Lake are provided in the responses to comments #3, 11, 12, and 37.
- **Quantity of Dredged Material:** a response to the comments regarding the quantity of dredged material and associated traffic impacts from removing a large volume of sediment via trucking for off-site disposal is included in the response to comments #18.
- **Methylation of Mercury:** the comment regarding the recommendation that the USFWS review and comment on the proposed permit modification is addressed in the response to comment #20.

- Area Designated for Remediation: the comment regarding remediation of mercury impacted sediments outside the areas designated in the permit modification is addressed in the responses to comments #13, 14, and 20.
- Recontamination of the Lake: a response to the comment regarding contamination of Pompton Lake by chemicals other mercury is provided in response to comment # 12.
- Ecological Risk Assessment (“ERA”): the comment regarding working with the USFWS and other stakeholders (e.g. NOAA, NJDEP and the CAG) on the ERA is addressed in the responses to comment # 20 and 22.
- Health and Safety Plan (“HASP”): the comment regarding the preparation of a HASP is addressed in the responses to comment # 17 and 19.
- Sediment Dewatering Discharge to Pompton Lake: a response to the comment regarding the discharge of process water from the dredge process back into Pompton Lake is included in the response to comment #16.

COMMENT:

7. Comments from the Pompton Lakes Residents for Environmental Integrity (PLREI)

This CAG provided comments on a number of topics related to the permit modification. Responses to those comments on the topics of concern to PLREI are provided throughout the Responsiveness Summary. The responses to those PLREI comments made at the public hearing on December 8, 2014 are also included. To reduce redundancy, the PLREI comments are provided below and a reference to the location where the response to the comment can be located is provided.

RESPONSE:

DuPont – Chemours Spin-off

A response to the comments regarding the DuPont spin-off of Chemours and RCRA Financial Assurance for Sediment Remediation is provided in the response to comment #5.

Residual Levels of Mercury and Lead Post-Remediation

A response to the comment regarding estimating the levels of mercury and lead that will reside in Pompton Lake post-dredging/removal is provided in the response to comment #31.

Excavated Sediment Handling/Processing

The comment regarding details of processing the contaminated sediment in the PLSA including the piping of dredged sediment from the PLSA to the former DuPont PLW facility for processing and off-site disposal via rail is addressed in response to comment #16.

Protection of Wildlife during Dredging

A response to the comment regarding what will happen to wildlife in the area subject to dredging and measures to protect wildlife is provided in the response to comment #32.

Capping

A response to comments regarding capping in the PLSA is contained in the response to comment #20.

Borough Project in Pompton Lake/Ramapo River

Comments regarding the Borough's project in Pompton Lake/Ramapo River are addressed in the response to comment #28.

Public Participation

The comment regarding notification to all residents prior to implementation of dredging activities is addressed in the response to comment # 23.

Fish Signage

A response to the comment regarding the posting of signage prohibiting consumption of fish is provided in the response to comment #29.

COMMENT:

8. Comments from the Pompton Lakes Lake Restoration Committee, a subcommittee of the Pompton Lakes Flood Advisory Board

The Lake Restoration Committee provided comments on topics of concern related to the permit modification.

Support for the Permit Modification

A response to the expression of support for the remedy proposed in the permit modification is provided in the response to comment #2.

Completion/Implementation of a Lake Management Plan

EPA understands the Committee's stated goal of developing a plan that will help ensure the long-term sustainability and use of Pompton Lake as a recreational water body. To that end, EPA will engage and communicate with the Lake Restoration Committee, when requested, in order to provide status updates on the progress of the environmental clean-up, respond to questions/concerns raised by the Committee and provide resource information that may be helpful in its efforts to complete/implement its Lake Management Plan.

COMMENT:

9. Comments from the Passaic River Coalition (PRC)

The PRC provided comments on a number of topics related to the permit modification. Responses to those comments on the topics of concern to the PRC are provided throughout the Responsiveness Summary. Therefore, to reduce redundancy, the PRC comments are provided below and a reference to the location where the response to the comment can be located is provided.

Clean-up Target

The comment requesting a specific numeric clean-up target for mercury is addressed in the response to comment #13.

Capping

The comments regarding capping in the PLSA are addressed in the response to comment #20.

Cap Monitoring

A response to the comments regarding the monitoring of cap integrity is provided in the response to comment #20.

Natural Resource Damages

The comment regarding EPA support of the natural resource damage assessment process by the USFWS is addressed in the responses to comment #20 and 21.

Downstream Hot Spots

A response to the comments regarding a timeline for addressing downstream hot spots and the nature of a long-term monitoring program downstream is provided in the response to comment #14.

Public Participation

The comments regarding having DuPont make validated data available publically via a website, provision of annual funding by DuPont for a public entity to provide consulting services to support relevant public interests and EPA having an ongoing public involvement process are addressed in the response to comments #23 and 33.

Adaptive Management

A response to the comment regarding utilizing an adaptive management process to ensure all emergent issues can be addressed without further modification of the permit is provided in the response to comment # 38.

COMMENT:

10. Additional Technical/Policy Comments

A commenter provided a number of technical comments (each shown in italics followed by EPA's response) regarding the draft permit modification. There were several different comments in the submission; major comments are summarized followed by the EPA response.

RCRA regulations include full federal partner review including, but not limited to, the USFWS, National Oceanic and Atmospheric Administration, and Agency for Toxic Substance and Disease Registry ("ATSDR"), pursuant to regulation 40 CFR 124.10 (c)(iii).

Response: The commenter noted that EPA RCRA regulations required review of the proposed action at the Pompton Lakes facility. EPA has coordinated with the USFWS (see Response to Comment #20) and has complied with notice requirements contained in 40 CFR 124.10(c)(iii). EPA will maintain coordination with the USFWS as well as other federal, state and local agencies during the implementation of the corrective measures contained in the permit modification.

USFWS found numerous technical deficiencies and flaws in DuPont's ecological evaluation.

Response: The comments regarding the USFWS are addressed in the response to comment #20.

The proposed cleanup plan fails to consider and comply with New Jersey State requirements. The commenter generally stated that the draft permit modification fails to consider/comply with New Jersey requirements and asserts that RCRA must be bound by relevant and applicable State requirements. Further, the commenter more specifically claimed there are exceedances of the NJDEP ecological screening criteria for mercury citing the severe effects level at 2 parts per million (ppm) and the lowest effects level at 0.2 ppm, both of which the commenter notes are lower than the concentrations of mercury found in sediments within the PLSA.

Response: The NJDEP, Site Remediation Program, Environmental Toxicology and Risk Assessment Unit has developed their Ecological Screening Criteria Table from various sources to allow ease of reference for ecological screening criteria for surface water, sediment and soil. With the exception of the surface water quality standards (SWQS) (N.J.A.C. 7:9B), the ecological screening criteria are not promulgated standards, but are to be used as screening values in ecological assessments (emphasis added).

Ecological screening criteria and other guidance related to mercury in sediment were considered in the evaluation of corrective measures for the PLSA. A multiple lines of evidence approach was utilized in lieu of a numeric action level or standard (there is no promulgated sediment clean-up standard for mercury) to determine which mercury contaminated sediment should be remediated to meet the remedial action objectives (“RAOs”). The multiple lines of evidence used to identify and delineate areas of mercury impacted sediment that would be subject to dredging/removal included the following site-specific information:

- Surface water characterization;
- Sediment characterization including measuring concentrations of total and methyl mercury in sediment, sediment toxicity studies and sediment pore water analysis;
- Biota sampling and analysis as part of ecological investigations including analysis of fish, amphibians, insects and birds;
- Bathymetry (or water-depth analysis) and side scan sonar analysis and grain size analysis to characterize the river bed; and
- Evaluation of river/lake bed stability and changes in sediment bed elevation patterns (i.e. identification of erosional and depositional areas).

Additional discussion regarding the multiple lines of evidence utilized to determine the nature and extent of the remediation proposed can be found in the following documents:

- ABD Area Remedial Action Selection Report (RASR)/Corrective Measures Study (CMS);
- Technical Memorandum: Updated Conceptual Site Model dated March 2014;
- Technical Support for Selection of Additional Sediment Removal Areas dated October 2014; and,
- Technical Support for Acid Brook Delta Upland Soil Areas dated October 2014.

The PLW is not a Superfund site. The commenter may be referring to the concept of applicable or relevant and appropriate requirements (“ARARs”) used under Superfund. In any event,

applicable and appropriate state standards are considered under RCRA where site conditions and corrective measures require such consideration.

Potential air emissions and local mercury deposition have not been addressed. EPA must document and quantify historical use and releases of mercury at the DuPont site, including air emissions.

Response: The permit modification proposes corrective measures for the PLSA to address contamination from mercury as well as other contaminants of concern. As further described in the response to comment #11, EPA recognizes that there are additional sources of mercury in the PLSA (most importantly, atmospheric deposition). Sources of atmospheric deposition likely include historical operations at the DuPont PLW as well as other non-DuPont PLW sources. However, EPA has concluded that DuPont is responsible for the overwhelming majority of buried and exposed mercury in the PLSA. Irrespective of whether the mercury contamination reached the PLSA via the Acid Brook, air deposition or another route, the proposed corrective measures in the draft permit modification are intended to address mercury impacted sediment/soil.

Regarding the documentation of historical use and releases of mercury at the DuPont PLW, there are a multitude of technical reports that document the nature and extent of contamination (including mercury) both on- and off-site. These technical reports can be viewed on EPA's website located at http://www.epa.gov/region02/waste/dupont_pompton/index.html and NJDEP's website located at:

http://www.state.nj.us/dep/srp/community/sites/dupont_pompton_lakes.

The commenter points out that on November 18, 2012, NJDEP proposed surface water quality standards (SWQS) "wildlife criteria" for, DDT and its metabolites, PCBs and, mercury. The proposed NJDEP wildlife criteria value for mercury was 0.00053 micrograms per liter (ug/L) or parts per billion (ppb). The commenter indicated that EPA's proposed cleanup plan does not come close to achieving a SWQS of 0.00053 ug/L for mercury. The commenter also stated that the RCRA permit process must meet federal Clean Water Act (CWA) requirements and New Jersey Surface Water Quality Standards.

Response: The development of the proposed "wildlife criteria" in New Jersey for DDT and its metabolites, PCBs and mercury was the result of a multi-agency (representatives from EPA, USFWS and NJDEP) effort to develop surface water quality criteria for the protection of wildlife species potentially at risk from environmental contaminants. The goal of the effort was to derive New Jersey-specific numeric surface water quality criteria for the protection of wildlife, using the Great Lakes Water Quality Initiative methodology developed by the EPA. The basis for this undertaking and the methods used in arriving at the proposed water quality criteria concentrations were documented in a report: "*Derivation of New Jersey-Specific Wildlife Values as Surface Water Quality Criteria for: PCBs, DDT, Mercury* - A cooperative effort between the: U.S. Fish & Wildlife Service, U.S. Environmental Protection Agency and New Jersey Department of Environmental Protection dated September 2001. The proposed value for

mercury based on this multi-agency effort was 0.00053 ppb or 530 parts per quadrillion. This proposed value was not adopted as a promulgated standard. New Jersey's Surface Water Quality Standard for mercury in fresh water is aquatic – acute = 1.4 ppb and aquatic – chronic = 0.77 ppb.

EPA believes that its approach to identifying and evaluating the attainment of media cleanup standards (i.e. requirements of other environmental laws) is consistent with EPA's corrective action guidance (e.g. OSWER Directive 9902.3-2A, May 1994, RCRA Corrective Action Plan {Final}) and that the corrective measures in this permit modification will be protective of human health and the environment. Notwithstanding this, EPA reserves the right to incorporate provisions of other federal environmental laws (e.g. Clean Water Act).

The proposed corrective measures for the PLSA should aid in reducing the loading of mercury from sediment to surface water. The implementation of a LTMP will serve to evaluate the PLSA ecosystem, including surface water as a result of the removal of mercury impacted sediments within the near-shore environment as well as Area A and the Island Area, areas with the greatest potential for methylation.

The commenter expressed the view that the ecological analysis was flawed due to a failure to sample fish, birds and bats that bioaccumulate the highest levels of mercury.

Response: Ecological data for the delta contained in the Ecological Risk Assessment in 2003 and the draft 2013 Pompton Lake Ecological Investigation Report indicated that the greatest exposure to mercury, particularly methyl mercury in abiotic and biotic media is associated with near shore areas of the ABD. Mercury concentrations in some abiotic and biota media were higher in the PLSA than in the reference area. Data collection supporting the ecological evaluation included surface water, sediment, pore water, tissues of larval and emergent adult non-biting midges, adult crayfish, and spider tissue. Each of these analyses support the remedial action objectives developed to address potential unacceptable risks associated with the site conditions and exposure pathways identified.

Surface water samples were collected to evaluate potential ecological exposure and mercury bioavailability in surface water within the PLSA. Sediment quality was investigated to evaluate potential adverse effects to benthic macroinvertebrate communities exposed to mercury within the PLSA. Additional sediment and pore water characterizations were conducted to evaluate potential mercury-associated toxicity to benthic macroinvertebrate communities within a broader spatial extent within the PLSA.

Mercury bioaccumulation in aquatic- and emergent-life stage invertebrates was evaluated via collection of the tissue of larval and emergent adult non-biting midges (Family: Chironomidae) and adult crayfish in the PLSA and reference areas. Chironomids were selected as the target species to evaluate mercury bioaccumulation in larval and emergent insects because previous investigations indicated that Chironomids represented the greatest relative abundance of insects collected in benthic samples from the ABD and reference areas. Chironomids emerge throughout the year. Their emergence from lake sediments provide a continued source of forage

and potential mercury exposure to aerial insectivores (e.g. tree swallow, and little brown bat) and predatory terrestrial invertebrates (e.g. spiders). Crayfish are useful indicators of potential mercury exposure because they are widely distributed and relatively large and long-lived. Crayfish can also represent an important food source to fish and wildlife, including birds and mammals.

A fish tissue survey was conducted to evaluate exposure to fish and piscivorous wildlife that may be exposed to mercury through the consumption of fish in the PLSA. Fish samples were collected from various size classes to represent mercury concentrations in tissues over a range of exposure durations (i.e. larger and older fish have a greater exposure duration). Whole body tissue samples from the following feeding groups were collected:

- Omnivorous fish (e.g. Golden shiner) which forage on invertebrates and phytoplankton;
- Invertivorous fish (e.g. yellow perch, bluegill sunfish) which forage on benthic macroinvertebrates and plankton;
- Demersal invertivores (e.g. brown and yellow bullhead) which forage on benthic invertebrates; and
- Piscivorous fish (e.g. largemouth bass) which forage on other fish.

An amphibian tissue evaluation was performed through the collection of adult American bullfrog samples to evaluate mercury exposure bioaccumulation in amphibians that may serve as a dietary component of upper trophic consumers (e.g. great blue heron and mink).

Dietary exposure pathways were evaluated for invertivorous songbirds that potentially forage on predatory terrestrial invertebrates (e.g. spiders). An avian receptor survey was conducted to document the presence/absence, use and relative abundance of birds that forage on aquatic/terrestrial invertebrates and fish. Analysis of mercury in spider tissue was performed to assess potential dietary exposure to invertivorous songbirds.

Certain broader ranging receptors (e.g. birds, mammals) did not have tissue sampling performed as part of the 2013 Ecological Investigation due to the greater spatial range of these receptors and the uncertainty in attributing exposure to specific sampling stations as the commenter observed. However, tissue evaluation of fish was performed contrary to the commenter's comments. In addition there was an evaluation of songbirds vis a vis an avian receptor survey as well as assessing potential dietary exposure to songbirds via analysis of mercury in spider tissue.

The other aforementioned evaluations performed represent a technically valid, sufficient scope of work to satisfactorily analyze potential ecological receptor exposure in the PLSA.

The cleanup is less stringent than EPA proposed in 2012 permit that was challenged by DuPont. Also, EPA abandoned the previously proposed 2 ppm sediment cleanup standard.

Response: In terms of the extent of clean-up, this draft permit modification requires the dredging/removal of approximately 136,000 cubic yards of mercury contaminated sediment whereas the permit modification of 2012 required the dredging/removal of approximately 100,000 cubic yard of mercury contaminated sediment. Based on the additional field work/studies performed during and subsequent to the appeal of the 2012 permit modification; this draft permit modification is more comprehensive in scope and thereby reduces the uncertainty associated with the 2012 permit modification in the areas of long-term monitoring and further investigation downstream of the Pompton Lake Dam.

Regarding the comment that EPA abandoned the previously proposed 2 ppm sediment clean-up standard for mercury; this comment is fully addressed in Comment #13.

The uplands soil cleanup is flawed and not protective.

Response: The Upland Soil Area includes two distinct areas: 1) areas located outside the established wetlands and wetlands transition zone and 2) land areas within the established wetlands and wetlands transition zone.

Areas located outside the wetlands/wetlands transition zone will be excavated based on the New Jersey Department of Environmental Protection's Residential Direct Contact Soil Remediation Standards and impacted soil will be disposed of off-site.

For the Upland Soil Areas located within the wetlands/wetlands transition zone, the November 2012 draft permit modification required DuPont to design and implement a Remediation and Restoration Plan, subject to EPA approval, that would adequately address the ecological exposure pathway to site contaminants or develop updated ecological soil delineation criteria on which the excavation limits will be based. Utilizing data collected subsequent to DuPont's permit appeal and taking into account concerns expressed by the USFWS, the November 2014 draft permit modification requires excavation to a depth of three feet below the final restoration elevation (as will be defined in the updated CMI WP or one foot below the assumed water table elevation of 200.5 feet (i.e., 1 foot below full pool lake level), whichever is encountered first. EPA believes this excavation coupled with restoration work will address contamination in both the wetlands and the wetlands transition zone, and be protective of human health and the environment.

DuPont's science and methods are inconsistent with, do not meet the rigorous standards of, and contradict EPA science.

Response: EPA, as well as NJDEP, have provided oversight of the investigation and analyses performed by DuPont as part of the RCRA Corrective Action process leading to the issuance of the draft permit modification for the PLSA. EPA believes that the RCRA Corrective Action process followed by DuPont, and overseen by EPA and NJDEP, is consistent with EPA's permit requirements (1992), NJDEP's Administrative Consent Order (1988) and EPA's RCRA Corrective Action Plan guidance (1994) and that appropriate scientific standards and quality control measures were utilized in the investigations of the contamination in the PLSA.

11. DuPont Responsibility

COMMENT:

There were comments that indicated the proposed remedial action suggests that the regulatory agencies (NJDEP and EPA) have concluded that the only source of mercury contamination in the PLSA from the DuPont PLW is via the Acid Brook. The commenters also expressed strong disagreement with any determination that DuPont is not responsible for all of the mercury contamination in the Pompton Lake.

RESPONSE:

EPA believes there are sources of mercury in the Pompton Lake system (most importantly, atmospheric deposition) in addition to the mercury deposition from the DuPont PLW via the Acid Brook. Sources of atmospheric deposition likely include non-DuPont PLW sources as well as atmospheric deposition from the DuPont PLW operations. However, EPA has concluded that DuPont is responsible for the overwhelming majority of buried and exposed mercury in the PLSA.

At EPA's direction, DuPont reviewed available information to identify potential upstream sources of mercury. [Ref. DuPont, 2010. Supplemental Technical Information Report ABD Project, DuPont Pompton Lakes Works, Pompton Lakes, New Jersey, June 2010.] In addition to atmospheric sources, DuPont identified six publicly-owned treatment works on the upper Ramapo River and one National Priority Site (i.e., the Ramapo Landfill Superfund site) as potential point sources of mercury to the PLSA. While these point sources may very well exist in the watershed, the results of sediment sampling conducted by the United States Army Corps of Engineers and by DuPont's contractor in the 1990s in areas of the river below the potential sources (but upstream of the project area) do not suggest that these point sources introduced enough mercury to the system to produce the elevated concentrations present in the PLSA.

The permit modification requires DuPont to dredge mercury-contaminated sediments from an expanded area of the ABD, totaling approximately 36 acres and to dredge/remove sediments in two additionally identified areas known as Area A (approximately .5 acres) and the Island Area (approximately 2.5 acres). DuPont is also removing soil in the ABD Upland Soil Areas.

DuPont is required to design and implement a LTMP to establish baseline conditions and conduct long-term monitoring of the PLSA. The LTMP will be designed to measure key indicators of the overall condition of the PLSA over an initial five year monitoring period. The LTMP will be used to evaluate the PLSA ecosystem subsequent to the removal of mercury sediments with the greatest potential for methylation. The results of the initial five year monitoring period will be utilized to determine the scope of further remedial action (if required) and/or any changes to the monitoring.

Under the base permit, as previously discussed, the Permittee is also required to perform sediment characterization in the Ramapo River and Pompton River from the Pompton Lake Dam approximately three miles downstream to Riverside Park in Wayne, New Jersey. The objective

of the work is to determine how far downstream mercury might have migrated. The results of this work will be analyzed and reported to EPA and NJDEP by the Permittee.

12. Recontamination of the Pompton Lake Study Area (PLSA)

COMMENT:

There were comments that expressed concerns that areas of the PLSA to be remediated via dredging/removal will be re-contaminated by mercury in groundwater emanating from the PLW site, discharge from the Acid Brook and redistribution of mercury from areas of the Ramapo River and Pompton Lake not remediated. Commenters suggested that any such contamination be addressed by more comprehensive dredging and remedial actions at the PLW site. There were related comments suggesting that the remediation sequence is incorrect and that the dredging/removal should only occur after PLW areas of concern and the groundwater plume are addressed.

RESPONSE:

Corrective action under RCRA, as amended by the HSWA, generally consists of the following steps: the RCRA Facility Assessment (“RFA”), RCRA Facility Investigation (“RFI”), Corrective Measure Study (“CMS”), and Corrective Measure Implementation (“CMI”).

At the DuPont site, since the mid-1980’s, there have been on-going investigations on-site (Northern, Western, and Eastern Manufacturing Areas) and off-site (Wanaque River, Acid Brook, ABD in Pompton Lake, and off-site groundwater contamination plume) to evaluate the need for interim remedial measures. As a result of these studies, DuPont has implemented a number of on-site (and off-site) actions (referred to in various documents as interim measures/interim corrective measures and/or stabilization measures) pursuant to NJDEP and EPA directives. These interim measures serve to prevent further migration of contaminants to the environment and are consistent with the final remedy.

This permit modification addresses remediation of the PLSA. Remediation of the other PLW areas of concern will be the subject of permit modifications at a later date when a corrective action is determined. Corrective action(s) for the remaining AOCs at the site can occur in parallel or progress at a different rate. Because PLW site contamination conditions are stabilized, corrective actions at the various areas of concern can proceed under their own schedule and do not need to follow a particular sequence.

Nevertheless, EPA agrees that the potential for recontamination of a project area is an important consideration before conducting any remedial activities at any site. EPA reviewed various lines of analysis to assess the potential for recontamination of the project site. These are discussed in the following paragraphs.

Groundwater

EPA has determined that there is no potential for recontamination of the project area due to mercury introduced by groundwater contaminated at the PLW. In 1995, mercury was eliminated as a contaminant of concern (for purposes of groundwater sampling) in the Comprehensive Groundwater Monitoring Program based on a review of data collected from on-site and off-site monitoring wells between 1982 and 1995. Only sporadic and generally minimal exceedances of applicable groundwater mercury standards were found in that review and there was no indication that mercury was migrating off-site via the groundwater pathway. The groundwater contamination from the DuPont site primarily consists of chlorinated volatile organic compounds.

Upstream contamination (Upper Lake and Ramapo River)

EPA has reviewed available historical sediment and water chemistry datasets for areas of the Ramapo River that lie upstream from the PLSA to assess the potential for recontamination of the PLSA. In 1990, the United States Army Corps of Engineers collected samples at various locations in the Ramapo River as part of environmental studies supporting the Ramapo River Flood Protection Project. Samples were taken from just south of where the Ramapo River discharges into Pompton Lake to just below the Susquehanna & Western Railroad Bridge in Oakland, New Jersey. Mercury concentrations were below detection limits (< 0.1 ppm) in all sediment samples. In 1996, DuPont's contractor collected three sediment samples from each of three reference areas in upper Pompton Lake (See ABD Ecological Investigation Reference Area Evaluation and Phase 1 Data Report, PTI Environmental Services, 1997). The highest concentration of mercury measured in any of these upper lake samples was 0.53 ppm. When compared to the limited sediment mercury data available for other New Jersey lakes and reservoirs, these concentrations suggest that sediment mercury concentrations upstream of the PLSA are of the order expected for other New Jersey lakes and reservoirs (0.07 - 0.09 ppm for nine lakes; 0.13 – 0.35 ppm for three lakes; 0.45 ppm in Packanack Lake; and 0.38 ppm in Clyde Potts Reservoir in 1992 (see Chapter 7 of the New Jersey Mercury Task Force Report). Therefore, EPA does not believe that upstream segments of the Ramapo River (including upper Pompton Lake) will re-contaminate the PLSA after remediation.

PLW and Acid Brook

The DuPont PLW operation over many years resulted in releases of mercury, lead and copper to Acid Brook, which discharges to the ABD. In April 1994, DuPont ceased operation and initiated closure of its regulated units, decommissioning of processes, and cleanup. There are no continuing releases of contaminants migrating to the Acid Brook that would result in contaminated sediment and subsequent impact to the ABD.

The PLW and floodplains of the Acid Brook were extensively remediated between 1991 and 1997. During that remediation, the PLW grounds were re-graded to control surface water run-off and erosion; the floodplains and streambed of the Acid Brook were excavated, cleaned, and stabilized; and Acid Brook was largely channelized in concrete sides off-site. On-site, Acid

Brook was excavated and a geotextile membrane along with rip-rap was installed. Along the brook boundaries silt fence and an elevated portion of rock were installed to prevent the potential for surface run-off to enter the brook. In addition, the majority of the land surface along the brook is flat and does not promote surface run-off which would have the potential to transport from the PLW into the brook. As a result, the Acid Brook has low-flow that varies seasonally and transports little sediment to Pompton Lake.

Acid Brook has been tested several times since its remediation. EPA conducted water and sediment sampling throughout the stream to assess the potential for mercury transport to the lake. In November 2011, EPA collected one water and sediment sample at four locations (two at the headwaters of Acid Brook above PLW, one downstream of the facility gate, and one just upstream of DuPont Place). In February 2012, EPA collected three water and sediment samples at five locations (upstream from Lakeside Avenue, Van Avenue and DuPont Place, downstream of Colfax Avenue (only one sample taken), and at downstream of the facility gate). Mercury was below detection in all water samples during both sampling efforts. Mercury in sediment was 0.3 ppm in samples collected at the headwaters (2011), 0.1- 0.2 ppm at Lakeside Avenue (2012), ranged between 0.7 to 3.0 ppm in Van Avenue and Colfax Avenue samples (2012), and was between 2.2 - 2.9 ppm downstream of the facility gate (2011, 2012).

Higher concentrations (10 – 29 ppm) were measured in sediments sampled from the location upstream from DuPont Place. It is unclear why sediment concentrations were elevated in this stretch of the brook. Subsequent sampling performed by DuPont upgradient of this location indicated concentrations were low and that the concentrations of mercury found at the location upstream of DuPont Place was not associated with any soil/sediment from the PLW.

Redistribution of mercury from areas of lower Pompton Lake not remediated.

The potential for redistribution of mercury from unremediated portions of the lake onto the ABD can be difficult to assess. Results of a 2011 depth survey of the project area were compared to results of a 2007 survey to verify that conditions in the project area were unaffected by the two major flooding events in 2010. The comparison showed that a significant amount of sediment had been scoured from the bottom of the main river channel in narrow areas just north and south of the ABD. There was little change evident in wider areas of the lake (i.e., in the ABD and across to its opposing shore). Currents generally flow downstream. Based on this and the lack of significant decreases in depth on the ABD, we expect that the majority of sediments that are re-suspended from these areas moved downstream rather than onto the ABD.

The permit modification minimizes the potential for recontamination of the project area by redistribution of mercury from unremediated portions of Pompton Lake by requiring DuPont to remove mercury-impacted sediments from the PLSA from areas that have a relatively higher potential for migration and relatively higher mercury concentrations than the remainder of the unremediated areas of lower Pompton Lake.

EPA's draft permit modification requires submittal of a Long-term Monitoring Work Plan ("LTM WP"). The LTMP WP will be designed to measure key indicators of the overall

condition of the PLSA over an initial five year monitoring period. The LTMP will be used to evaluate the PLSA ecosystem as a result of the removal of mercury sediments with the greatest potential for methylation. The results of the five year monitoring period will be utilized to determine the scope of further remedial action (if required) and/or any changes to the monitoring.

13. Establishment of a numeric mercury clean-up level for sediment

COMMENT:

There were comments submitted regarding the use of action levels to determine the areas of dredging/removal of mercury contaminated sediment. There were commenters that specifically referenced the desire that a 2 parts per million (“ppm”) concentration of mercury be used as an action level or standard for the dredging/removal of mercury contaminated sediment.

RESPONSE:

Remedial action objectives (“RAOs”) are developed to address potential unacceptable human health or environmental risks associated with site conditions and the exposure pathways identified. Narrative qualitative RAOs were developed to set goals for protecting human health and the environment. There are no promulgated applicable remediation standards for mercury in sediment to use as numeric RAOs or clean-up levels.

There are both human and ecological receptors in the PLSA. Humans may have direct contact with surface water and sediment during recreational activities although recreational activities on Pompton Lake are restricted due to elevated levels of coliform bacteria within the surface water. Swimming and wading in Pompton Lake are prohibited. It is expected that current restricted human use of Pompton Lake can be enforced and will continue in the future.

Ecological receptors, aquatic species in particular, have direct contact with surface water and sediment. While the potential for significant risks were shown to be minimal, the ecological data for the ABD sediments and two additional areas identified in Pompton Lake indicated that mercury concentrations in some biota were higher than in reference areas. The focus on risk management for mercury impacted sediment is the potential concern for ecological receptors.

In order to be protective of ecological receptors, the following qualitative RAOs for the ABD sediments and additional areas identified in Pompton Lake were developed:

- Remove sediments with the potential to methylate mercury and reduce the potential for further mercury methylation in near-shore sediment in the ABD;
- Reduce the area of exposure of ecological receptors to elevated mercury concentrations in sediments;

- Reduce the potential of ecological receptor exposure by removing sediment which has the potential to methylate mercury and which reduces the mass of mercury in the surficial sediment (i.e. sediment found at 0 to 0.5 feet) in the ABD and additional areas of concern identified in Pompton Lake (Area A and the Island Area); and
- Reduce the potential for ecological receptor exposure by removing the sediment which has the potential to methylate mercury and thereby reduces the mercury mass in the deep sediment (i.e. the sediment found at > 0.5 feet) in the ABD and additional areas of concern identified in Pompton Lake (Area A and the Island Area).

A multiple lines of evidence approach was utilized (because as stated above, there is no promulgated sediment clean-up standard for mercury) to determine which mercury contaminated sediment should be remediated to meet the RAOs. The multiple lines of evidence used to identify and delineate areas of mercury impacted sediment that would be subject to dredging/removal included the following:

- Surface water characterization;
- Sediment characterization including measuring concentrations of total and methyl mercury in sediment, sediment toxicity studies and sediment pore water analysis;
- Biota sampling and/or analysis as part of ecological investigations including fish, amphibians, insects and birds;
- Bathymetry (or water-depth analysis) and side scan sonar analysis and grain size analysis to characterize the river bed; and
- Evaluation of river/lake bed stability and changes in sediment bed elevation patterns (i.e. identification of erosional and depositional areas).

The 2 ppm concentration of mercury is not a clean-up standard for mercury in sediment. The permit modification of December 2012 that was appealed by DuPont and the PRC and subsequently withdrawn by EPA states that in March 2004, NJDEP required DuPont to delineate the ABD sediment mercury contamination to 2 ppm. The 2 ppm mercury concentration level is not a remediation goal and not a promulgated standard. The information contained in the delineation was used to facilitate development of RAOs that are protective of ecological receptors (see also the Response to Comment #10).

14. Contamination below Pompton Lake Dam

COMMENT:

There were comments that expressed concern about the potential for contamination of areas downstream of the Pompton Lake Dam.

RESPONSE:

EPA shares the concern that mercury contamination attributable to the DuPont PLW site potentially extends to areas downstream of the Pompton Lake Dam. EPA previously reviewed available data and directed sampling of downstream floodplain areas. Based on this information, EPA concluded that mercury from the PLW site may have been transported beyond the Pompton Lake Dam. The following information was used in support of EPA's conclusion.

Surface water sampling conducted by DuPont in the Ramapo River and Pompton Lake between May 2004 and May 2005 showed that under normal flow conditions, surface water samples taken in shallow areas of the ABD generally contain higher concentrations of mercury (including methyl mercury) when compared to water sampled further upstream. This is generally not the case for surface water downstream of the ABD probably owing to significant dilution by Ramapo River water that has not contacted the ABD sediments. Data collected during 2013 was evaluated and compared as reference area/ABD and PLSA (i.e. the rest of Pompton Lake) datasets. Unfiltered surface water samples analyzed for total mercury had higher concentrations in the PLSA dataset relative to the reference area dataset. This is suggestive of potential increased mercury in Ramapo River water passing the Pompton Lake Dam as it flowed through lower Pompton Lake. However, data from filtered surface water samples analyzed for total mercury and analysis for total mercury on particles were not significantly different in the PLSA dataset relative to the reference area dataset. Results of analyses for methyl mercury in unfiltered, filtered and particles from surface water were not significantly different.

Additional information suggesting that mercury from the DuPont PLW may have been transported past the Pompton Lake Dam is a survey of water depths (bathymetry) across the ABD and adjacent areas of Pompton Lake which was conducted in fall 2011 as part of preconstruction planning. Results of this survey were compared to results of a 2007 bathymetry survey to verify that conditions in the project area were unaffected by major flooding events in 2010/2011. There was little change evident in sediment depths in areas where Pompton Lake was widest. However, it was clear that a significant amount of sediment had been scoured from the main river channel bottom in narrow areas just north and south of the ABD. Sediments scoured from the downstream areas included sediments that had previously been buried below the river bottom during the 2003-04 sampling seasons with documented mercury concentrations of approximately 20 ppm. Potentially, this sediment could have been transported downstream beyond the Pompton Lake Dam. It is also important to consider that storm events may bring large amounts of sediment into the watershed which are deposited on the historic lake bed and can also significantly dilute contaminated sediments that are potentially re-suspended and mobilized by the storm.

In addition to the aforementioned information suggesting that mercury from the DuPont PLW has the potential to be transported beyond the Pompton Lake Dam, there has been previous physical and chemical characterization of sediment between the Pompton Lake Dam and the Pompton Dam. Data was collected by DuPont in 2010 at the request of EPA/NJDEP along the Ramapo River to evaluate whether sediment from the ABD was being transported downstream as a result of then-recent flood events and deposited in overbank areas below the Pompton Dam.

A total of five areas were identified for sediment sampling/analysis where then-recent fluvial deposits of soil material (ranging in depth from 0.75 to 1.75 feet) were observed. Concentrations of mercury in six sediment samples analyzed ranged from non-detect to 1.39 ppm.

As part of its feasibility study for the removal of the Pompton Dam and Pequannock Dam, the State of New Jersey Department of Property Management and Construction performed both physical and chemical characterization of the sediment. Sediment data collected and analyzed from multiple sampling events (a total of eleven samples) indicated concentrations of mercury ranging from 0.11 ppm to 2.4 ppm.

Notwithstanding the previous characterization work, EPA believed it was necessary to more comprehensively assess the nature and extent of sediment contamination in the Ramapo River and Pompton River from the Pompton Lake Dam approximately three miles downstream to Riverside Park in Wayne, New Jersey. DuPont performed a riverbed substrate mapping survey and sediment characterization sampling based on its Ramapo River/Pompton River Substrate Characterization Memorandum, DuPont Pompton Lakes Works dated February 2014, which was reviewed by EPA/NJDEP and approved by EPA in July, 2014. The objective of the work is to determine how far downstream mercury might have migrated. The results of this work will be analyzed and reported to EPA and NJDEP by DuPont. Any necessary remedial work, if any, which may be required in this area will be proposed to EPA for approval and subsequent implementation through a separate permit modification, which will be subject to public review and a public comment period before being finalized.

15. Restoration of Pompton Lake and the ABD Upland Soil Areas

COMMENT:

There were commenters that expressed concern about restoration of both Pompton Lake and the ABD Upland Soil Areas. Specifically, concerns were expressed about the nature of the restoration, the completeness of the proposed restoration and community input regarding appropriate restoration.

RESPONSE:

Following dredging and removal there will be restoration within the PLSA, including the ABD Uplands Soil Areas. The scope of the restoration activities were initially described in DuPont's CMI WP, specifically Appendix F – Operations Plan dated September 2011, which can be found on EPA's website at http://www.epa.gov/region02/waste/dupont_pompton/additionaldocs.html. The permit modification requires DuPont to design and submit to EPA for its approval, after EPA and NJDEP review, an updated Remediation and Restoration Plan ("Plan") to address the ABD, the two additionally identified areas (Area A and Island Area) subject to dredging/removal of mercury contaminated sediments and the ABD Upland Soil Areas. Therefore, while the September 2011 CMI WP provides information on restoration, it should be noted that it is not the final restoration plan. Once the updated Remediation and Restoration Plan is prepared by

DuPont, it will undergo EPA/NJDEP review and an opportunity will be provided for community input before it is finalized.

Generally, the updated Remediation and Restoration Plan will address the corrective action as described in the permit modification, include a post-remedial monitoring program for the restoration activities performed and an implementation schedule. The updated Remediation and Restoration Plan will be designed to ensure that the potential pathways for ecological receptors to mercury-contaminated soil and sediment will be addressed. A post-remediation monitoring plan for the restoration will also be included in the Remediation and Restoration Plan to ensure the sustainability of the restoration measures.

The ABD Upland Soil Areas restoration component of the Remediation and Restoration Plan will include re-grading of the uplands to accommodate planting with native vegetation, and placement of park amenities and pathways for public use. In the ABD, Area A and the Island Area, the dredged area will be restored by placing a granular layer of sand over the dredged area to manage any residual mercury contamination and to establish a zone for benthic community recolonization over time. Additionally, planting and seeding of desirable aquatic native vegetation will take place. The plantings, along with the sand layer, will expedite restoration and increase the ecological functions of both the aquatic and benthic habitats.

16. Excavated sediment handling/processing

COMMENT:

There were commenters that asked about the details of processing the excavated contaminated sediment from the delta. How will the water be managed after the filtration of the excavated material? Could dredged sediment be piped from the PLSA to the former DuPont PLW facility for processing and off-site disposal via rail? Could the areas of sediment subject to remediation be pumped after draining the area versus mechanical or hydraulic dredging?

RESPONSE:

DuPont is required to submit an updated Project Operations Plan, which is a component of the CMI WP and will include the details for the sediment excavation and excavated sediment processing.

The objective is to remove the contaminated sediment from the ABD and dispose of the sediment at an authorized landfill off-site. To do this, the dredged contaminated sediment will be processed to separate out the lake water from the sediment and then the contaminated sediment will be prepared for off-site disposal. If necessary, the separated water will be treated to meet any surface water permit requirements before being recycled back into the lake within the rigid barrier surrounding the ABD. A treatability study conducted on the sediment separation process indicated that the filtrate (i.e., the water separated out from the process) contains mercury, lead, and copper at concentrations less than the drinking water standards for mercury, lead, and copper. [Ref. draft CMI WP, 9/20/2011.] It should be noted that the dredge operation

and management of the filtrate are also subject to applicable New Jersey state permitting requirements.

A description of the previously proposed excavated material processing is as follows:

- Sediments will be removed “in the wet” utilizing a hydraulic dredge.
- Monitoring in the lake will be performed during dredging activities to assess the impact of construction on the surrounding environment and community (e.g., air monitoring and water column monitoring).
- Sediment removed during the dredging process will be directly transported as slurry via pipeline to the shore for processing. Lake water is added to the slurry to maintain the quality for efficient flow. The updated Project Operations Plan will provide additional details on the dredge sequencing.
- The dredged slurry will be pumped through a vibrating shaker screen to remove debris, stones, large wood chips, and gravel from the slurry. Screenings will be discharged onto the staging pad for transport to stockpiles.
- The screened dredge slurry will then gravity feed into a V-bottom tank and be drawn off from the bottom and sent through the desanding units.
- The underflow from the desanders will then be directed over dual vibrating linear motion shakers with mesh screens for further sand removal.
- The overflow from the desanders will be pumped to a gravity thickener to thicken (concentrate) the silt fraction of the sediments and decant the free water back to the ABD within the sheet-pile area.
- The thickened sediments will be pumped into agitated mix tanks.
- Filter press fast feed centrifugal pumps will draw from the agitated mix tanks to fill filter presses.
- Upon transfer from the feed tanks, polymer will be added to the dredge slurry, through a flow meter, static mixer, and polymer injection system.
- The addition of polymer to the dredged slurry will be used to improve the filterability of the solids.
- The amended slurry will be pumped to filter presses.
- The filtrate will be discharged into the filtrate tank to be pumped for discharge back into the lake (within the rigid barrier surrounding the ABD).

The previously proposed excavated material processing will be updated, as necessary, to reflect the areas of dredging in the final permit. The excavated material processing procedure will be included in the updated CMI WP that will be reviewed by EPA/NJDEP and subject to EPA approval.

Removal completion confirmation will be elevation-based as defined by the dredge prism. It is anticipated that an approximate 50-foot by 50-foot grid will be used for survey confirmation efforts by a New Jersey licensed professional.

With regard to potentially piping the contaminated sediment up to the site for processing and subsequent off-site disposal via rail, an evaluation of the efficacy of this approach was performed. This approach was not considered the most effective approach for the following reasons:

Access – multiple private property owners would need to provide access to their property. If the Acid Brook stream bed is used as the route to convey contaminated sediment to the site, the home owners who own portions of the brook would have to agree to provide access. In addition, the pipe conveying contaminated sediment for processing would occupy stream volume which could contribute to flooding.

Road and Railroad Crossing – a road crossing could occur by using existing culverts but the railroad culvert is too small for both the dredge pipe and the storm water flow. In both cases access agreements would need to be obtained from property owners including the railroad. Access under the railroad would need to be constructed that would require an access agreement between the Permittee and the railroad be executed. Previous experience with another aspect of the environmental clean-up requiring access to railroad property has shown that the process to execute an access agreement (assuming the railroad were amenable to such an agreement) can be lengthy. Additionally, there is not an active rail spur at the DuPont PLW.

Hydraulic and Mechanical Dredging – It is important to note that even if conveying hydraulically dredged sediment to the DuPont PLW for processing and off-site disposal via rail was viable, it would not be possible to treat the ABD Upland Soil Areas nor mechanically dredged material in the same way as hydraulically dredged material. The main reason is that the ABD Upland Soil Areas and mechanically dredged material will not be suitable for pumping as they will contain too high a solids content. Therefore, this material will still need to be processed at the lake prior to transportation to the disposal facility.

With regard to de-watering the lake and pumping impacted sediment (i.e. removing sediment “in the dry”) versus mechanical/hydraulic dredging; the following implementation considerations resulted in mechanical/hydraulic dredging being selected as the preferred approach:

- Control of surface water during heavy storm events would be difficult in areas sectioned off for removal;
- Controlling groundwater infiltration during removal would yield large quantities of water to handle;

- Odor control would be a more significant issue since a larger area around the sediment would be opened;
- Managing the material --- the sediment would be a “muck” and require large amounts of additive to handle it or add water to assist in moving the sediment which would then require drying it out before off-site transport in order to meet the disposal facilities requirements; and
- Whether adding water or additives, the volume of material to be disposed off-site would increase which would increase the number of trucks needed to haul out material as well as more trucks to bring in additives like cement to modify the characteristics of the waste for handling and disposal.

17. Other Operational Considerations during Remedy Implementation

COMMENT:

Commenters expressed concerns regarding various operational aspects of the implementation of the remedy in the draft permit modification. These concerns included overall health and safety, noise, air quality, site security, and government oversight of the field work.

In addition an inquiry was made regarding which company would be performing the dredging/removal work, which company would be transporting material off-site, what the final location would be for the dredged material and impacted soil, which company would be providing backfill and what the source of the backfill would be.

RESPONSE:

The permit modification requires DuPont to submit an updated Project Operation Plan, which is a component of the CMI WP and that will include operational details for remedial activities. A draft Project Operations Plan was originally proposed by DuPont in September 2011. Both the CMI WP and the Project Operations Plan will be updated to reflect the final permit modification. DuPont is required to submit the updated CMI WP, including the Project Operations Plan to EPA and NJDEP no later than 90 days after the final permit becomes effective, unless EPA approves a later date upon request.

The updated CMI WP, including the Project Operations Plan, Health and Safety Plan and Quality Assurance/Quality Control Plan, once approved by EPA (after review by NJDEP) will include establishment of security (described below) and traffic control (discussed further in Response to Comment #18), development/implementation of an air monitoring plan, implementation of noise controls (as appropriate), identification of and relocating (as necessary) aboveground and underground utilities, installing erosion and storm water control measures, provisions for accessing and establishing appropriate material and equipment staging areas, and clearing activities.

Site security will be established during initial mobilization to the site, and will be continuously maintained during non-working hours until demobilization activities are complete. Signage will be posted that the PLSA is an active construction area. Temporary fencing will be installed to restrict access to active areas and protect monitoring and construction equipment. Traffic control (e.g., signage, flag person) will be provided, where construction activities may interfere with normal vehicle or pedestrian traffic. It is also important to note that, when school is in session, coordination will also be required with the local schools to avoid transport of materials and other construction-related traffic during certain morning and afternoon hours and minimize interference with school-related traffic.

The updated Project Operations Plan will address, at a minimum, issues related to the following operational details: Dredging; Boat Ramp preparation; Historic and Archaeological Resources; Natural Resources; Storm water; Flooding; Restoration; Stockpiling, Dewatering and Treatment of Dredge Spoils/Soil; Lake Access for Residents; Temporary Roads; Acid Brook Restoration; Post-Dredging Restoration of ABD; Post-Restoration Maintenance; Public Safety; Security; General; Traffic and Roads; Public Involvement Plan; Vibration; Parking; Noise; Sanitation; Utility Impacts; Air Monitoring; and Odors.

The firms performing the dredging/removal work, transporting material off-site, providing the final off-site disposal of the dredged material, providing backfill as well as other subcontracted services to DuPont (e.g. surveying, traffic control, etc.) will be identified in the updated CMI WP to be submitted by DuPont for EPA/NJDEP review and subject to EPA approval.

18. Traffic Considerations during Remedy Implementation

COMMENT:

There were comments expressing concern about the traffic route that would be utilized during implementation of the remedy as well as what provisions would be put in place in the HASP regarding traffic control.

RESPONSE:

DuPont is required by the permit modification to submit an updated Project Operation Plan, which is a component of the CMI WP. The CMI WP, including the Project Operations Plan will include implementation details for remedial activities. A draft Project Operations Plan was originally proposed by DuPont in September 2011 that included some information about traffic considerations during remedy implementation. In conjunction with the submittal of the updated CMI WP, including the Project Operations Plan, EPA will provide information to the community about the proposed traffic control measures and truck route with the intent of obtaining community input, including input from local stakeholder groups.

Various preparation activities and control measures will be implemented prior to and/or during remedial construction to limit potential construction impacts on the surrounding areas. With regard to traffic control and the route of truck traffic, detailed information will be provided in a

Traffic Control Plan that will be a component of the Project Operations Plan. EPA would review the Traffic Control Plan and coordinate with the Borough of Pompton Lakes. The proximity of the Lakeside Avenue School to the remedial activities will also result in EPA coordinating with the Pompton Lakes Board of Education. It is important to note that planning and coordination with school officials will be required when school is in session to minimize any interference with school related traffic. Pompton Lakes officials are also expected to provide EPA with recommendations on traffic control to facilitate approval of the Traffic Control Plan.

Generally, traffic control (e.g., signage, flag person) will be provided, where construction activities may interfere with normal vehicle or pedestrian traffic in the vicinity of the work area.

19. Proximity to Lakeside Avenue School

COMMENT:

There were comments that raised concerns about the dredging/removal work being performed in Pompton Lake and the ABD Upland Soil Areas that is near the Lakeside Avenue School. Concerns included the potential presence of mercury in air as a result of the dredging posing a threat of exposure to those in the Lakeside Avenue School, whether remedial work would be performed during the time school is in session, whether students/teachers should be relocated during the implementation of the work, and whether there would be notification to parents of children attending Lakeside Avenue School.

RESPONSE:

EPA has performed and provided oversight at many environmental clean-ups where the proximity of sensitive populations (e.g. school children) has been a concern. Regarding the dredging/removal of mercury contaminated sediment/soil within the PLSA, a detailed Health and Safety Plan (“HASP”) will be prepared by DuPont and reviewed by EPA. The HASP will detail the procedures and methods that will be employed by DuPont (with EPA oversight) to protect workers and residents, including sensitive populations such as the school children at Lakeside Avenue School. The HASP will identify the project-specific health and safety procedures and will present information such as training certifications, environmental and personnel monitoring, hazards and associated controls, work zones, identification of key personnel, standard operating procedures, and safety programs.

Other plans will be developed related to health and safety of workers and residents. An Air Monitoring Plan that provides the types, locations and frequency of samples for analysis of contaminants of concern, including mercury will be developed. DuPont will prepare a Contingency Plan that provides procedures for responding to emergency conditions or events that may occur during the performance of the remedial action activities. The plan will include spill prevention, odor control methods, noise control, site security, traffic control, adverse weather contingencies, prevention of injury or damage by inclement weather, flood control contingencies, marine contingency measures, sediment processing/wastewater treatment spill responses, damage to overhead and underground utilities, emergency vehicle access and egress

routes, offsite truck material spills, evacuation procedures, emergency numbers and route to the hospital, and a listing of responsible persons.

A determination about the specific timing of the remedial work and whether it will be performed when Lakeside Avenue School is in session will be made after the permit is final, DuPont at that time is required to submit a CMI WP that includes a schedule for implementation of the remedial work. However, based on the expected duration of the dredging/removal work, it is anticipated that the remedial work will overlap with the school year to some degree. Based on EPA's experience with this type of work at other sites and the development and implementation of a site-specific HASP, EPA does not currently anticipate the need to relocate teachers/students at Lakeside Avenue School during the performance of the work.

As part of its community engagement process, EPA expects to work interactively with the Board of Education as well as school and local officials in Pompton Lakes to inform residents, including parents and teachers of children attending Lakeside Avenue School about the scope and timing of environmental clean-up of the lake. In addition, EPA plans on reviewing the content of the HASP and other plans mentioned above and to seek input, respond to questions and keep the community informed.

20. Interface with the United States Fish and Wildlife Service (USFWS)

COMMENT:

There were commenters that requested that USFWS be consulted and that EPA address USFWS comments. A commenter represented that according to the USFWS Prescreening Assessment dated October 18, 2013, EPA's proposed remediation would leave "significant" amounts of mercury behind and that federal trust resources are likely to be damaged as a result. The same commenter stated that USFWS found numerous technical deficiencies/scientific flaws in the ecological evaluation that formed the basis for EPA's permit modification. The commenter requested that EPA prepare response letters to USFWS comments in the final permit modification. It was suggested by a commenter that EPA provide specific responses to the USFWS comments (dated February 9, 2012) to EPA's previous permit modification that was subsequently appealed and ultimately withdrawn by EPA.

RESPONSE:

EPA and the USFWS have coordinated efforts during the development of the permit modification in an effort to address USFWS concerns. In February 2012, USFWS provided EPA with its review of the then proposed dredging/removal project pursuant to the Endangered Species Act of 1973. A known occurrence or potential habitat for two threatened or endangered species (Small whorled pogonia {threatened} and the Indiana bat {endangered}) were identified as being located on or near the project's impact area. However, the USFWS concurred that the proposed project is not likely to adversely affect federally listed or candidate species. USFWS determined that no habitat for the Small whorled pogonia exists in the footprint of the project area or in the surrounding areas. Regarding the Indiana bat, there will be a seasonal restriction

on the clearing of trees greater than 5" diameter at breast height to avoid incidental taking of any bats that may roost in the project area. EPA will coordinate with USFWS regarding any update to their 2012 review pursuant to the Endangered Species Act of 1973 based on the change in the footprint in the area subject to remediation.

EPA and the USFWS met several times to discuss the permit modification and exchange data/reports in an effort to facilitate the USFWS' understanding of the PLSA and support each agency's efforts under corrective action (EPA) and natural resource damage assessment (USFWS). The USFWS completed its review of the proposed permit modification and provided comments to EPA in its correspondence dated November 10, 2014. EPA is committed to continuing its coordination with the USFWS during the development of the plans (e.g. Long-term Monitoring Plan and the Remediation and Restoration Plan) as well as the field implementation of the corrective action contained in the permit modification.

EPA believes the most pertinent USFWS comments to address are those in their November 10, 2014 correspondence as they specifically relate to the corrective action proposed by EPA in its permit modification. Rather than prepare a separate response letter for the USFWS comment letters, EPA has summarized the major points contained in the USFWS November 10, 2014 comment letter below and addressed them in this response and/or cross-referenced to where a specific USFWS point is addressed in this Responsiveness Summary.

Acid Brook Delta (ABD)

The USFWS is supportive of EPA's plan to increase the removal area within the ABD to approximately 36 acres from the originally proposed 26 acres and to address removal of sediment from approximately 3 acres with higher rates of mercury methylation outside the ABD (i.e. Area A and the Island Area). However, the USFWS believes long-term post – construction monitoring is critical given that there will be mercury-impacted sediment that will remain outside the removal areas. To that end, the USFWS recommends development of a detailed work plan for post-construction monitoring that incorporates performance measures and potential thresholds for corrective action.

EPA shares the USFWS concern about the criticality of the long-term post-construction monitoring (i.e. long-term monitoring). The USFWS acknowledges EPA's requirement for post-construction monitoring and that the permit modification provides a general description of the types of sampling that will be included. EPA's permit modification requires submittal of a Long-term Monitoring Work Plan (LTMP WP) by DuPont within 45 days of the approval of the CMI WP, or by such other date as is approved by EPA. The LTMP WP will be designed to measure key indicators of the overall condition of the PLSA over an initial five year monitoring period. The LTMP will be used to evaluate the PLSA ecosystem as a result of the removal of mercury sediments with the greatest potential for methylation. The results of the five year monitoring period will be utilized to determine the scope of further remedial action (if required) and/or any changes to the monitoring. EPA will coordinate with the USFWS regarding DuPont's development of the LTMP WP to address the USFWS concern about the level of specificity

presented in the LTMP WP. Coordination with USFWS includes invitation of its representatives to meetings as well as soliciting its comments on the LTM WP that will be prepared by DuPont.

The USFWS recommended incorporating spider sampling in the vicinity of the ABD into the LTMP WP. EPA intends to further evaluate this recommendation in consultation with the USFWS as part of the development of the LTMP.

The USFWS service also recommended a minimum of a 12-inch cap be placed over the entire removal area of the ABD. Surface sediments in the ABD project area are underlain by a layer of peat. The occurrence of this peat layer ranges from several inches to several feet below the present lake bottom. This peat layer corresponds to turf that was flooded in 1908 upon the construction and operation of the Pompton Lake Dam which resulted in an impoundment of Ramapo River (referred to as Pompton Lake). Water flowing down the Acid Brook transported mercury-contaminated sediments to the impoundment and deposited them across the ABD. (DuPont started operations in the Eastern Manufacturing Area in 1928.)

Sediment cores collected from throughout the ABD were vertically sectioned and analyzed to delineate the vertical and horizontal distribution of mercury in the area. Analysis of the vertical sections of core established that mercury contamination is largely limited to sediments that are above the peat layer and that in most areas the highest concentrations are located below the sediment surface.

Capping of sediments is not being required in the permit modification for remediation of mercury-contaminated sediments within the expanded area of the ABD (and in selected areas outside the ABD). The permit modification requires that all areas be remediated by dredging to below the level of contamination-- the dredging depth will generally be to the peat layer. However, there will be selected areas of dredging below the peat layer where previous investigation has detected elevated levels of mercury that could become available to ecological receptors. Following dredging, a layer of clean sand is to be placed over the dredged areas. The purpose of this layer of clean sand is not to serve as a barrier to cover contaminated-sediment in-place (which would require regular maintenance), but to encourage the re-establishment of the ABD bottom's ecological community. Nevertheless, the clean cover will provide an additional measure of protection by isolating much of any residual mercury that may be left behind following dredging. EPA anticipates that this layer should remain in place as data from the vertical sections of cores indicates that the ABD appears to be a stable sedimentary environment where bottom sediments are not readily redistributed even during major flow and flooding events. This expectation is further supported by EPA's comparison of 2007, 2011 and 2013 depth data which showed little effect of the 2010 flooding events on bottom depths across the PLSA. Post-construction monitoring through the LTMP will help confirm that the ABD is a stable sedimentary environment where bottom sediments are not readily redistributed such that concentrations of mercury appear in surface water and/or biota that result in increased exposure to ecological receptors.

Upland Remediation (i.e. Upland Soil Areas)

EPA shares the belief of the USFWS that "...expeditious removal of mercury-laden soil and sediment in the ABD and surrounding wetland, wetland transition, and upland habitats is of paramount importance to returning Pompton Lake to a functionally intact ecosystem." The USFWS does express concern about the use of a 20.5 mg/kg remedial action objective for mercury in the Upland Soil Areas. The USFWS commented that protectiveness of the removal should be enhanced to block potential transport pathways to ecological receptors by providing a minimum of two feet of clean protective material (sand cap or "eco-layer") be placed on top of the entire Upland Soil Areas.

EPA evaluated the concerns raised by USFWS during the 2012 permit modification process and the 2014 permit modification. The 20.5 mg/kg RAO for mercury is not going to be applied in the wetland/wetland transition zone of the Upland Soil Areas because EPA has determined that the corrective measures for the Upland Soil Areas in the permit modification will effectively accomplish the objective of blocking potential pathways to ecological receptors.

EPA's RAO is to eliminate or minimize the potential exposure to ecological receptors within the wetland and wetland transition zone to surface and subsurface soils in these areas by limiting the potential for mercury methylation, bioaccumulation, and translocation. To accomplish this RAO, areas landward of the ABD removal area within the wetland and wetland transition zone will be excavated to a depth of three feet below the final restoration elevation (as will be defined in the updated CMI WP or one foot below the assumed water table elevation of 200.5 feet (i.e., 1 foot below full pool lake level), whichever is encountered first. The resulting excavation will be backfilled with certified clean fill material (base material and a planting medium) to establish a supportive medium of clean fill material at optimal surface elevations to provide a primary rooting zone for restoration plantings. EPA expects to consult and coordinate with the USFWS to address its concern about the type of plantings for restoration (i.e. plantings whose root depth should have a high potential to not go below the depth of backfill placed).

The inclusion of additional excavation in the wetland/wetland transition zone adds an additional measure to support ecological protectiveness of the aforementioned approach as it relates to restoration planting rooting depths and the potential for translocation of mercury remaining at depth following removal activities. By providing a clean layer to facilitate the growth of restoration planting, it will minimize or eliminate the potential for ecological receptor exposure by limiting the potential for mercury methylation, bioaccumulation and/or translocation.

Pompton Lake Remediation

In its comments, the USFWS supports EPA's approach of moving forward with an environmental clean-up of the PLSA that removes the vast majority of contaminant load in the system. However, the USFWS is concerned about the concentrations of mercury in sediment within the PLSA that remain after completion of the remedial action. Due to that concern, the USFWS emphasized the critical nature of the long-term monitoring program in documenting that mercury contamination does not make its way into the food web and/or migrate downstream.

EPA understands the USFWS concern regarding concentrations of mercury in sediment within the PLSA that will remain after completion of the remedial action. To that end, EPA's permit modification requires development and implementation of a LTMP WP designed to establish baseline conditions and conduct long-term monitoring of the PLSA. The LTMP WP will be designed to measure key indicators of the overall condition of the PLSA over a five year monitoring period. The LTMP will be used to evaluate the PLSA ecosystem as a result of the removal of mercury sediments with the greatest potential for methylation. The results of the initial five year monitoring period will be utilized to determine the scope of further remedial action (if required) and/or any changes to the monitoring.

Existing data and any new data collected in order to address identified data gaps will be utilized to (1) develop baseline conditions of mercury in surface water so that significant increases or decreases in mercury exposure can be identified and, (2) develop baseline conditions of mercury bioaccumulation in fish tissue so that significant increases or decreases in mercury exposure to fish or piscivorous wildlife can be identified.

The field sampling plan that will be a component of the LTMP will contain the following monitoring elements: surface water, sediment, sediment pore water, young of year fish tissue, adult fish tissue, larval insect tissue, and emergent insect tissue. The conceptual framework and details for the study design/sampling approach, types of chemical analyses and biological samples, and frequency and location of samples will be provided in the LTMP WP. As such, specific recommendations provided by the USFWS (e.g. sampling of spiders, measuring mercury in suspended solids in surface water) will be further assessed during the LTMP WP development to determine whether these monitoring elements will be part of the final LTMP. The development of field sampling plan will be by DuPont with input and review by EPA, NJDEP, and the USFWS. EPA will provide final approval.

Once finalized, the field sampling program will provide sufficient detail and will endeavor to address the USFWS concern of being able to document that mercury contamination does not make its way into the food web and/or migrate downstream. As monitoring data from the LTMP becomes available, EPA will work collaboratively with the USFWS as well as NJDEP and DuPont in the evaluation of performance measures to assess the effectiveness of the removal of mercury contaminated sediment in reducing bioaccumulation of mercury, in reducing downstream transport, and in assessing the potential need for further corrective action.

Contamination Downstream of Pompton Lake Dam

The USFWS expressed concern about evaluating potential transport of mercury from Pompton Lake to areas downstream of the Pompton Dam and the desire to provide input on downstream evaluations and the potential need for corrective action.

DuPont performed a riverbed substrate mapping survey and sediment characterization sampling based on its Ramapo River/Pompton River Substrate Characterization Memorandum, DuPont Pompton Lakes Works dated February 2014, which was approved by EPA and NJDEP in July, 2014. The scope of work in the technical memorandum pertains to the Ramapo River and

Pompton River from the Pompton Lake Dam approximately three miles downstream to Riverside Park in Wayne, New Jersey. The objective of the work is to determine how far downstream mercury might have migrated. The results of this work will be analyzed and reported to EPA and NJDEP. Remedial work, if any, in this area will be addressed in a separate permit modification.

Once the report for the aforementioned work is submitted by DuPont, EPA will work collaboratively with the USFWS as well as NJDEP in the review/evaluation of the report and assessing the potential need for further corrective action.

21. Assessment of Natural Resource Damage

COMMENT:

Commenters expressed concern that a natural resource damage assessment has not been performed for the DuPont PLW.

RESPONSE:

The performance of a natural resource damage assessment and the pursuit of claims for assessed damages is under the purview of the Department of Interior's United States Fish and Wildlife Service ("USFWS") and not EPA.

The first step for USFWS in developing their natural resource damage claim is the preparation of the Preassessment Screen. The purpose of the Preassessment Screen is to provide a review of readily available information on hazardous substance releases and potential impacts of releases on natural resources under their trusteeship. .

USFWS conducted a field investigation in the summer of 2014 as part of the natural resource damage assessment process. EPA has provided previously collected, relevant data to USFWS to support their natural resource damage assessment process. USFWS and EPA will continue to coordinate and consult to support both the environmental clean-up of the DuPont PLW, including the remedy proposed for the PLSA as well as the USFWS's natural resource damage assessment process.

22. Performance of an Ecological Risk Assessment

COMMENT:

There were commenters that indicated that EPA should perform an ecological risk assessment ("ERA") in conjunction with or directly following implementation of the remedy.

RESPONSE:

The remedy proposed in the draft permit module requires DuPont to design and submit for EPA approval, a LTMP that will establish baseline conditions and conduct long-term monitoring of the PLSA. The LTMP will be designed to measure key indicators (e.g. surface water, sediment, biota {e.g. fish, insects}) of the overall condition of the PLSA over an initial five-year monitoring period. The LTMP will be used to evaluate the PLSA ecosystem as a result of the past removal of mercury sediments with the greatest potential for methylation.

The link between the LTMP and an ERA is as follows. Existing data and data collected as part of the LTMP will be utilized to 1) develop baseline conditions of mercury in surface water so that potential significant increases in mercury exposure can be identified, and 2) develop an understanding of the conditions of mercury bioaccumulation in fish tissue such that potential significant increases in mercury exposure to fish or piscivorous wildlife can be identified.

Information and empirical data gathered during the implementation of the LTMP (including, but not limited to, surface water, sediment, sediment pore water, young of year fish tissue, adult fish tissue, larval insect tissue and emergent fish tissue) are expected to be sufficient to allow EPA to determine if an ERA is necessary. The LTMP contains a significant portion of the ecological information/data needed to perform the ERA. If determined to be required by EPA to further inform a decision about the need for additional remedial action, an ERA of the PLSA will be conducted.

23. Opportunities for community group stakeholder input into the planning and decision-making process for selection of the PLSA remedy and the environmental clean-up in general

COMMENT:

Commenters expressed their view that community stakeholders have not been given sufficient opportunity for input into the planning and decision-making process for selection of the PLSA remedy and the environmental clean-up in general. One commenter suggested that all the residents of Pompton Lakes be notified via the United States Postal Service months prior to the commencement of dredging.

RESPONSE:

Community engagement and receipt of input from local stakeholders regarding the selection of an environmental clean-up remedy are very important to EPA during the RCRA corrective action process. For the DuPont PLW site, EPA community outreach efforts involve interface with residents as well as three different organized community groups. In addition, elected officials including the Mayor and Council of Pompton Lakes have met with EPA and are engaged in site remediation activities. There are 400+ property owners whose homes are located in the “vapor mitigation area”, an area delineated within the Pompton Lakes community where vapor intrusion

into homes due to the historical operations of the DuPont PLW is being addressed. There are also many residents in Pompton Lakes who have expressed interest in the environmental clean-up activities associated with the DuPont PLW, including the proposed dredging remedy. While each of these different groups and individuals have a shared interest in an environmental clean-up of the PLSA that is protective of human health and the environment and is completed as soon as possible, they also have very different concerns and questions about how the environmental clean-up is to be accomplished.

In its efforts to provide opportunities for input into the remedy selection process as well as keep the community informed about the status of the environmental clean-up at the DuPont PLW, EPA has employed a multi-faceted community outreach approach. EPA's approach has included:

Public Availability Sessions

EPA conducted a public availability and information session specific to the draft permit modification for the PLSA on November 12, 2014 to review the proposed remedy and answer questions from attendees.

EPA also conducted public availability and information sessions prior to November 2014 as part of its community outreach. These other public availability sessions including status updates on various aspects of the environmental clean-up at the DuPont PLW, both on-site and off-site. Public availability sessions held on June 13, 2013; November 14, 2013 and March 19, 2014, typically included a status update on the progress of determining a remedy for contaminated sediment in the Acid Brook Delta/Pompton Lake and on the preparation of the permit modification necessary to propose and implement a selected remedy. Generally, these meetings were attended by 20 – 40 interested residents and other stakeholders.

EPA will hold additional public availability and information session(s) prior to the implementation of the remedial action contained in the final permit modification. The purpose of the session(s) will be to provide information and receive input regarding areas of community concern including, but not limited to: truck traffic, noise, odor control, air monitoring, general worker and community health and safety and considerations arising from the dredging operations being in proximity to the Lakeside Avenue School.

Weekly Public Availability by EPA

In response to residents' concerns regarding wider community outreach, EPA established a weekly presence in Pompton Lakes as of November 2013. EPA's Remedial Project Manager and Community Involvement Coordinator are available at the Pompton Lakes Municipal Building on Thursdays between 10AM and 4PM to answer questions and respond to residents' concerns about any aspect of the environmental clean-up of the DuPont PLW. Beyond the weekly presence, EPA also communicated its availability by appointment outside of the stated hours on Thursdays (i.e. including days other than Thursdays).

Publication of EPA Newsletter

EPA prepares and issues a periodic newsletter (the “DuPont/Pompton Lakes Works Site Clean-up Newsletter”) to keep residents informed of environmental clean-up activities at the DuPont PLW. The newsletter includes information about the permit modification related to remediation of contaminated sediment in the Acid Brook Delta/Pompton Lake. Newsletters were issued in October 2012, April 2013, August 2013, February 2014 and September 2014 and will continue to be periodically prepared and released.

Attendance at Stakeholder Meetings

Another aspect of EPA’s community engagement process has been to meet with a variety of stakeholders to present status updates and answer questions about the environmental clean-up activities, including remediation of contaminated sediment in the Acid Brook Delta/Pompton Lake. Local and other stakeholders with whom EPA has met include: the Borough of Pompton Lakes Mayor and Council, the Pompton Lakes Board of Education, the Pompton Lakes Community Advisory Group (“PLCAG”) also known as the Concerned Citizens for Pompton Lakes (“CCPL”), the Pompton Lakes Residents for Environmental Integrity (“PLREI”) in conjunction with an environmental class of students at William Paterson College, the original Pompton Lakes Community Advisory Group, Rotary Club, and the League of Women Voters.

EPA will continue its community outreach and be available to meet with local stakeholder groups and other interested parties at their request prior to, and during the implementation of the final remedy documented in the permit modification for the PLSA. In response to several commenters’ concerns about the proximity of the remedial work to Lakeside Avenue School, EPA will put additional emphasis on interface with and support to the Pompton Lakes Board of Education in its efforts to provide information and respond to concerns/questions from parents/teachers of Lakeside Avenue School.

Other Methods of Community Outreach

EPA has used a number of other methods to provide community outreach. Notification of significant milestones for the project (e.g. issuance of a permit modification) as well as project status updates have been through newsletters, electronic mail to a list of recipients maintained by EPA, posted on EPA’s website, posted on the Borough of Pompton Lakes website and/or hand delivering flyers to local businesses. EPA intends to continue to use these communication tools as part of its overall community outreach prior to, and during the implementation of the remedy documented in the final permit modification. In addition, EPA will have an on-site presence during the implementation of the remedy to provide field oversight and to be available to answer questions/concerns from residents/local stakeholders.

EPA believes these methods of communication as part of the overall community outreach constitute a comprehensive community notification program. As such, EPA does not believe the resource intensive method suggested by one commenter of mailing approximately 12,000 notifications via the United States Postal Service is justified. The elements of EPA’s community

outreach approach previously described provides sufficient opportunity for local stakeholder groups as well as residents to give input into the process of selecting a remedial action for the PLSA and the environmental clean-up in general.

Public Comment Period/Public Hearing

In conjunction with issuing draft permit modifications regarding the dredging of Pompton Lake (originally in November 2011 and then again in November 2014), EPA conducted public information sessions to review the proposed remedy and answer questions from attendees. EPA established a public comment period, which allowed interested parties, including community groups, local officials and residents, the opportunity to provide input into the EPA proposed remedy. EPA also held formal public hearings that included preparation of a written transcript documenting community concerns/comments. EPA prepared this Responsiveness Summary, which formally responds to those community comments expressed during the public availability session/public hearing on the current proposed permit modification and submitted in writing during the public comment period.

Regarding the permit modification issued November 2011, a public information session was held on October 20, 2011 at which EPA made presentations and provided information on the proposed dredging remedy, and public participants offered their views on the matter. EPA held a public hearing on January 5, 2012 regarding the dredging proposed in the draft permit modification. Approximately 32 individuals provided comments at the public hearing. During the public comment period (between November 20, 2011 and January 13, 2012), written comments were received from 29 individuals (plus one additional written comment accepted after the end of the public comment period due to an electronic equipment problem experienced by the commenter).

As a result of all the public comments and additional information received, EPA issued its final permit modification in December 19, 2012. That final permit modification reflected changes from the draft permit modification that were an outgrowth of EPA's public participation procedures as well as consultation with other governmental agencies and evaluation of additional pertinent information received.

Before the permit modification became effective, DuPont and the PRC each filed timely petitions for its review with EPA's EAB pursuant to 40 C.F.R. §124.19 (a). By Order of the EAB, the appeals were stayed from February 2013 until April 2014 while EPA, DuPont and the PRC attempted to resolve the issues raised in the appeals. After consideration of all aspects of the matter involved in the permit appeals, pursuant to 40 C.F.R. §124.19, G), EPA withdrew the permit modification in its entirety on April 30, 2014.

During and subsequent to the period that the permit appeal was stayed by the EAB, DuPont performed additional investigatory work within and downstream of the PLSA. EPA prepared a new draft permit modification based on the additional data collected and presented by DuPont in a number of technical documents. EPA's draft permit modification also addressed concerns raised in the original permit appeal.

EPA gave the public notice on November 2, 2014 that it planned to issue its draft permit modification. The public comment period, originally established from November 3, 2014 to December 18, 2014 was extended to February 2, 2015 at the request of two interested parties in order to provide additional time to review documents and submit comments to EPA.

Regarding the draft permit modification issued November 2014, a public information session was held on November 12, 2014 at which EPA made a presentation and provided information on the proposed dredging remedy, and public participants asked questions, stated their concerns and offered their views on the matter. EPA held a public hearing on December 8, 2014 regarding the dredging proposed in the draft permit modification. Approximately 22 individuals provided comments at the public hearing. During the public comment period (between November 3, 2014 and February 2, 2015), written comments were received from approximately 74 individuals, the Borough of Pompton Lakes, two community groups, the PRC, DuPont and the USFWS.

After a review of all comments received by EPA, including those made at the public hearing, EPA has now issued its final permit modification to impose corrective action for the PLSA. Changes that have been made from the draft permit modification have been identified in this Responsiveness Summary.

24. Extension of the Public Comment Period

COMMENT:

There were commenters that expressed concern about EPA's decision to extend the public comment period from December 18, 2014 to February 2, 2015. The commenters concern was that the process to begin the implementation of the project would be further delayed. Commenters requested an extension of the comment period due to the volume and technical complexity of the matter.

RESPONSE:

In an effort to balance the concerns of those residents who did not want to further delay implementation of the project with the requests of the groups seeking an extension of the public comment period, EPA extended the public comment period an additional 46 days rather than the 60 days requested.

25. Comparison of 2014 and 2012 Permit Modifications

COMMENT:

Commenters requested that EPA provide a comparison of the November 2014 draft permit modification with the previous November 2012 permit modification.

RESPONSE:

The following paragraphs discuss the major differences between the current November 2014 draft permit modification and the November 2012 permit modification (that was ultimately withdrawn by EPA).

1. Area and Volume of Dredged/Removed Mercury Impacted Sediment

In the draft November 2014 permit modification, the area and volume of dredged/removed mercury impacted sediment includes approximately 36 acres in the ABD and approximately 3 acres in two additionally identified areas (i.e. Island Area and Area A) which will total approximately 136,000 cubic yards of sediment/soil removal. In the November 2012 permit modification, the area and volume of dredged/removed mercury impacted sediment included approximately 40 acres in the ABD totaling approximately 100,000 cubic yards of sediment/soil removed. The change from 40 acres to 36 acres in the ABD was based on additional sampling/analysis performed and other new information obtained by DuPont in 2013-2014 that provided a basis to revise the area and volume of mercury impacted sediment subject to dredging/removal.

2. Long – Term Monitoring Program (LTMP)

The November 2014 draft permit modification requires DuPont to design and implement a LTMP of the PLSA to confirm the effectiveness of the dredging/restoration project. DuPont's design and implementation of a LTMP for the PLSA (which will be reviewed by NJDEP and subject to approval by EPA) will ensure that the restoration plan adequately addresses the elimination of the exposure pathways to contaminated sediment or soil. In 2013/2014, DuPont collected additional information including sediment and biota sampling data that allowed EPA, NJDEP and DuPont to develop a framework for the LTMP that is described in the draft November 2014 permit modification.

The November 2012 draft permit modification did not have the benefit of the aforementioned sediment and biota data that was collected in 2013/2014. One of DuPont's concerns in its earlier permit appeal was the uncertainty regarding the nature, extent and duration of the LTMP to be contained in a draft permit modification. The data collected in 2013/2014 helped to reduce concern about the uncertainties related to the design and implementation of the LTMP.

The LTMP will be further developed under November 2014 permit modification, once the permit modification is issued in final form. A LTMP WP is required to be submitted by DuPont within 45 days of the approval of the CMI WP by EPA. EPA and NJDEP, in consultation and coordination with the USFWS will work with the Permittee in developing the details of the LTMP. The details will include the provisions for the identification and development of key parameters of the overall condition of the PLSA and how the LTMP will be used to evaluate the PLSA ecosystem as a result of the removal of mercury sediments with the greatest potential for methylation.

Ecological Risk Assessment (ERA)

The November 2014 draft permit modification requires that during year 5 of the LTMP or earlier if determined to be appropriate by EPA, EPA will determine whether there is a need to perform an ERA of the PLSA utilizing the data collected as part of the LTMP. The LTMP contains a significant portion of the ecological elements needed to perform the ERA. If determined to be required to further inform a decision about the need for additional remedial action, an ERA of the PLSA may be conducted. The ERA can be performed by the Permittee and/or EPA in a cooperative effort. The November 2012 permit modification assigned performance of ERA to DuPont.

3. Assessment of Ramapo River Downstream of Pompton Dam

DuPont has performed a riverbed substrate mapping survey and sediment characterization sampling based on its Ramapo River/Pompton River Substrate Characterization Memorandum, DuPont Pompton Lakes Works dated February 2014, which was approved by EPA. The scope of investigative work in the technical memorandum pertains to the Ramapo River and Pompton River from the Pompton Lake Dam approximately three miles downstream to Riverside Park in Wayne, New Jersey. The objective of the work is to determine how far downstream mercury might have migrated. The results of this work will be analyzed and reported to EPA and NJDEP by DuPont. After its review, any proposed remedial work in this area that EPA may determine to be necessary will be subject to a separate permit modification which will be subject to public review and comment.

The November 2012 draft permit modification required DuPont to design and implement a sediment sampling plan designed to determine how far downstream the contaminant impact may reach. Subsequent to the permit appeal filed by DuPont and the PRC, DuPont elected to perform the aforementioned riverbed substrate mapping survey and sediment sampling of the Ramapo River and Pompton River from the Pompton Lake Dam approximately three miles downstream to Riverside Park in Wayne, New Jersey even though the November 2012 permit modification was appealed.

4. ABD Upland Soil Areas

The Upland Soil Areas include two areas: 1) areas located outside the established wetlands and wetlands transition zone and 2) areas landward within the established wetlands and wetlands transition zone.

The remedy for areas located outside the wetlands/wetlands transition zone has not changed in the November 2014 draft permit modification from that proposed in the November 2012 permit modification. Those areas will be excavated based on the NJDEP's Residential Direct Contact Soil Remediation Standards and impacted soil will be disposed of off-site.

For the Upland Soil Areas located within the wetlands/wetlands transition zone, the November 2012 draft permit modification required DuPont to design and implement a Remediation and Restoration Plan, subject to EPA approval, that would adequately address the ecological exposure pathway to site contaminants or develop updated ecological soil delineation criteria on which the excavation limits will be based. Based on data collected subsequent to the permit appeals and concerns expressed by the USFWS, the November 2014 draft permit modification requires excavation to a depth of three feet below the final restoration elevation (as will be defined in the updated CMI WP or one foot below the assumed water table elevation of 200.5 feet (i.e., 1 foot below full pool lake level), whichever is encountered first.

26. Using an independent contractor to conduct the work in this project/Regulatory agency oversight.

COMMENT:

There were comments that expressed the desire to have an independent contractor perform the work instead of DuPont and perform independent testing. The level of regulatory agency oversight of DuPont during the performance of the work was also questioned.

RESPONSE:

Consistent with current regulations, common practice and the terms of the permit, EPA requires DuPont to conduct the remedial activities (DuPont utilizes professional contractors). EPA and the NJDEP will review all work plans and reports and will provide close and thorough oversight of the remedial activities. Where appropriate, EPA may use various methods to provide this oversight, such as split-sampling, auditing or observing sampling, confirmation surveying, and conducting both, announced and unannounced, site visits/inspections while remediation activities are underway. During the implementation of the dredging activities, EPA intends to provide field oversight and be available to the community to answer questions/respond to concerns. As part of its availability to the community during implementation of the fieldwork, EPA is considering staging a field trailer in order to have a central location near the work site where members of the community can access EPA.

27. Drinking water status of Pompton Lake

COMMENT:

There were comments that noted that Pompton Lake is used as a back-up drinking water source and the corrective action plan (i.e. permit module) requires sign-off by the regional water commission office or it will not be accepted.

RESPONSE:

The North Jersey District Water Supply Commission (“NJDWSC”) operates Wanaque Reservoir above the town of Pompton Lakes on the Wanaque River. NJDWSC is a regional wholesale water purveyor serving over 3 million New Jersey residents and is authorized to make surface water diversions on an “as needed basis” from the Ramapo River at Pompton Lake via the Ramapo Pump Station at Pompton Lake. The raw water is conveyed to the Wanaque Reservoir (which has a capacity of 29.6 billion gallons) where it combines with raw water from several other sources (including the Passaic River). When operating, the delivery rate of the Ramapo Pump Station (150 million gallons per day {“MGD”}) is less than the other raw water sources (such as Pompton/Passaic confluence in Wayne, which can pump 250 MGD). The water from the Wanaque Reservoir must be treated using conventional filtration (a series of processes including filtration, flocculation, coagulation and sedimentation and disinfection in order to comply with applicable drinking water requirements prior to transmission of the water to the municipalities.

Pompton Lake water was sampled in January, March, and May of 2004 and analyzed for contaminants of concern associated with DuPont (mercury, lead and copper). The sample location is just south of the intersection of Acid Brook and the Lakeside Avenue Bridge (where the brook discharges). Dissolved mercury measurements ranged from 13.6 to 40.4 ppt (parts per trillion) and total mercury ranged from 30.1 to 47.9 ppt. Dissolved copper ranged from 2.6 to 3.5 ppb (parts for billion) and total copper was measured at 5.6 ppb. (Lead was not detected.) [Ref. ABD RIR.] All measured concentrations of contaminants of concern associated with DuPont did not exceed their respective drinking water or New Jersey surface water standards.

In response to the final permit modification issued December 2012 (subsequently appealed by DuPont and the PRC and ultimately withdrawn by EPA in April 2014), representatives for the NJDWSC provided comments in a letter dated February 27, 2012. There was no comment(s) by NJDWSC in that letter or subsequently provided in response to EPA’s issuance of the draft permit modification dated November 2014 stating a requirement that NJDWSC needed to approve the permit modification.

EPA intends on interfacing with NJDWSC prior to remedy implementation to inform it about measures that DuPont will be taking to prevent potential adverse impacts to Pompton Lake as a drinking water source, which was the Commission’s previously stated concern.

28. Concern about a Borough Project.

COMMENT:

A community group expressed concern, including numerous questions regarding a Borough project that it believed was a dredging project that involved either Pompton Lake and/or the Ramapo River.

RESPONSE:

According to the Borough's Environmental Officer, the Borough of Pompton Lakes, in conjunction with several other nearby communities secured a De-silting/De-snagging Permit from NJDEP to remove accessory material from a stretch of the Ramapo River/Pompton Lake outside of the areas in the PLSA proposed for remediation. This NJDEP permitted project is not related to the proposed permit modification for the PLSA and is not a "dredging" project. The Borough's project is overseen by NJDEP and not EPA.

In Pompton Lake, work was done upstream of the areas in the PLSA proposed for remediation. The bulk of the work was done on the bank and the shoreline. The scope of the work included removal of dead/downed trees, old fences, debris and invasive vegetation. Some of the trees and debris were in the lake and considered to be obstructions, snag points or hazards to navigation. There was no radical change to the shoreline configuration.

There has been no dredging or removal of soil from the Ramapo River. The scope of work was to remove large trees and debris that had been washed into the river as a result of past storms. The banks had been severely eroded by past storms and the subsequent falling of bank-side trees. Work below Hamburg Turnpike was done under an emergency permit issued by NJDEP.

Soil used for the project was on-site material that had prior testing. The only material imported from off-site was crushed stone that was used for head-wall and outfall repairs.

Additional information about the Borough's project can be obtained by contacting the Borough of Pompton Lakes Environmental Officer, Ed Merrill at 973-835-0143.

29. Fish Signage

COMMENT:

There were comments that expressed concern about the need for signage to warn residents about consumption of fish from Pompton Lake.

RESPONSE:

EPA was previously advised by the Pompton Lakes Borough Health Officer that fish consumption advisory signs were posted at four locations around Pompton Lake where fishing occurs. Concerned residents raised the need for additional fish advisory signage and local officials purchased additional signage prepared in both English and Spanish. The additional signage was to be placed within Rotary Park, at ramp areas with the signs facing toward the lake and on the Lakeside Avenue.

30. Placing the DuPont PLW on EPA's National Priorities List (i.e. Superfund Site)

COMMENT:

Commenters suggested the DuPont PLW should be a Superfund site.

RESPONSE:

Placing a site on EPA's National Priorities List ("NPL") typically begins with a request from the state in which the site is located. A request has not been made by New Jersey for the DuPont PLW. In addition, EPA's RCRA deferral policy regarding the possible handling of RCRA corrective action sites under Superfund has been considered. That policy, in effect since the 1980s, provides that sites in the RCRA corrective action program would not be placed on the NPL but would rather be managed under the RCRA program when the responsible party is financially capable.

EPA previously considered this question and determined that the site will remain under the RCRA corrective action program.

31. Residual Levels of Mercury and Lead Post-Remediation

COMMENT:

There were comments that questioned whether the levels of mercury and lead that remained post-remediation could be estimated.

RESPONSE:

The implementation of the remedy proposed in the permit modification would result in the dredging/removal of approximately 136,000 cubic yards of mercury and lead contaminated sediment/soil. However, it would be difficult to quantify/estimate in a meaningful way the levels of mercury and lead that remain post-remediation. The intent of the LTMP is to establish baseline conditions and conduct long-term monitoring of the PLSA. The LTMP will be designed to measure mercury, the critical contaminant of concern, in key indicators (e.g. surface water, sediment, biota {e.g. fish, insects}) to assess the overall condition of the PLSA over an initial five-year monitoring period. The LTMP will be used to evaluate the PLSA ecosystem as a result of the past removal of mercury sediments with the greatest potential for methylation.

32. Protection of Wildlife during Implementation of the Remedy

COMMENT:

There were comments that questioned if and how wildlife would be protected during the implementation of the remedy.

RESPONSE:

There are provisions for the protection of wildlife that will be outlined in the updated CMI WP. For example, in the USFWS review of the potential for the presence of threatened and endangered species, there is a requirement for any clearing of trees greater than 5" diameter at breast height to be seasonally restricted from April 1st to September 30th to avoid incidental taking of any Indiana bats (an endangered species) that may roost in the project area. In addition, there will be a provision in the updated CMI WP for the collection of fish and other wildlife within the project area and their relocation to another part of the lake during the implementation of the remedy. EPA will work with the USFWS, NJDEP and DuPont in their updating of the CMI WP to ensure adequate protection of fish and wildlife during the implementation of the dredging/removal of sediment/soil.

33. Accessing a Technical Advisor

COMMENT:

A community group expressed the view that means should be provided so that a technical advisor can be secured to assist the group in its efforts to oversee, review, and analyze technical documents related to the environmental clean-up of the DuPont PLW.

RESPONSE:

The DuPont PLW site is not eligible for EPA's Technical Assistance Grant (TAG) because the site is not listed on EPA's National Priorities List (i.e. a Superfund site). A TAG provides money for activities that help communities participate in decision making at eligible Superfund sites. EPA in its community outreach efforts provides information and analysis of technical information as described in the Response to Comment 23.

NJDEP also has a Technical Assistance Grant program. The program provides funding to nonprofit community groups to employ independent Licensed Site Remediation Professionals as technical advisors to perform activities to improve the public's understanding of environmental conditions and remediation of contaminated sites in their communities. When determining eligibility, NJDEP will consider the availability of sufficient funds, level of community involvement and the complexity of the site. NJDEP will not award a Technical Assistance Grant to more than one community group at any one time for a site. More information about this program can be found at: <http://www.state.nj.us/dep/srp/finance>.

34. Health Effects Related to Pompton Lake

COMMENT:

There were several commenters who stated that they suffered adverse health effects from previous swimming, fishing or other types of recreating in Pompton Lake and the Ramapo River that flows through Pompton Lake.

RESPONSE:

The New Jersey Department of Health (NJDOH) and the federal Agency for Toxic Substances and Disease Registry (ATSDR) have been working with members of the Pompton Lakes community since March 2010, when a Community Advisory Group for Health (Health CAG) was first convened. The Health CAG serves as an open forum with the Pompton Lakes community to discuss and address health concerns. Based on concerns that the community is experiencing a disproportionate number of health problems, NJDOH and ATSDR were asked by Health CAG members to provide an understanding of whether there are health outcomes that are occurring more frequently in the Pompton Lakes population than would be expected.

In response, the State and federal health agencies pursued two complementary approaches: 1) development by NJDOH and ATSDR of a *Community Health Profile* based on existing public health and demographic data sets, including births, deaths, hospitalizations and emergency department usage, cancer registry, birth defects registry, and childhood lead exposure; and 2) development by NJDOH of a *Household Health Survey* of current and former residents of current households above the groundwater plume, gathering information on chronic diseases, demographic factors, and length of residence.

There are separate reports (released in 2012) containing the detailed methods, findings and conclusions of the Community Health Profile and the Household Health Survey. These documents also contain relevant background information on environmental and health concerns of the community. A report that synthesizes the findings of the Community Health Profile and the Household Health Survey was also prepared and released in 2014, to answer whether there are health outcomes that appear to be occurring (or have occurred) in higher frequencies than would be expected in Pompton Lakes as a whole or in the groundwater contamination area.

Questions about the aforementioned reports should be directed to the NJDOH at:

NJDOH - Environmental and Occupational Health Surveillance Program
P.O. Box 369
Trenton, New Jersey 08625-0369
(609) 826-4984

35. Use of Volume-Weighted Spatial Averaging

COMMENT:

There were comments that expressed concern that the use of volume-weighted spatial averaging to determine areas of impacted sediment would minimize the volume of contaminated sediment.

RESPONSE:

A volume-weighted spatial averaging evaluation was employed to characterize the extent of mercury concentrations in Pompton Lake sediment. This evaluation technique is an acceptable approach to present and discuss the distribution of contamination within the PLSA. Although

volume-weighted spatial averaging was utilized, the data points and corresponding results are contained in the document, Draft Remedial Action Proposal; CRG, November 2006, which is incorporated by reference into the ABD Area RASR/CMS, dated September 18, 2009.

Volume weighted spatial averaging was not used to determine the areas of sediment subject to remediation. A multiple lines of evidence approach was utilized (because there is no promulgated sediment clean-up standard for mercury) to determine which mercury contaminated sediment should be remediated to meet the RAOs. The multiple lines of evidence used to identify and delineate areas of mercury impacted sediment that would be subject to dredging/removal included the following:

- Surface water characterization;
- Sediment characterization including measuring concentrations of total and methyl mercury in sediment, sediment toxicity studies and sediment pore water analysis;
- Biota sampling and/or analysis as part of ecological investigations including fish, amphibians, insects and birds;
- Bathymetry (or water-depth analysis) and side scan sonar analysis and grain size analysis to characterize the river bed; and
- Evaluation of river/lake bed stability and changes in sediment bed elevation patterns (i.e. identification of erosional and depositional areas).

36. Bioaccumulation and Methyl mercury

COMMENT:

There were comments expressing concerns that the remedy may not adequately consider the potential for methylation and bioaccumulation of mercury. A commenter also suggested that because anaerobic sediments are a precondition for methylation of mercury, the potential for generation of methyl mercury should be greater in deeper areas of the lake where the overlying water dissolved oxygen levels are low.

RESPONSE:

The primary environmental concern related to mercury contamination in Pompton Lake is mercury's propensity to accumulate in tissues of exposed organisms and to build to higher levels in the food web. The form in which mercury is present is extremely important in determining its environmental fate and risk. Organic -- i.e., methylated -- forms of mercury are far more efficiently taken up by organisms and transferred through the food web than are inorganic forms. Organic mercury (methyl mercury) is also significantly more toxic. Conversion of inorganic mercury to organic forms (i.e., methylation) occurs via a bacteria-mediated process that takes

place in sediments under certain environmental conditions (typically, high organic content and anaerobic sediments). There are more detailed discussions of mercury methylation and bioaccumulation in the RASR 2009 and the Ecological Investigation Phase 2 Report (Exponent, 2003).

Accordingly, identifying and remediating lake bottom areas that are favorable to mercury methylation were emphasized in selecting a remedial strategy for Pompton Lake. Studies conducted showed that sediments in the ABD had higher total mercury and organic carbon contents than sediments in deeper areas of the lake and further away from the shoreline. The proportion of methyl mercury to total mercury in sediment revealed a strong correlation of mercury methylation with proximity to the shoreline. These data indicate that the near-shore sediments in the ABD are an important site for methylation of mercury in the Pompton Lake system. This finding was used as one of the multiple lines of evidence in the support of the initial proposal for the mass removal project. [See the Draft Remedial Action Proposal for ABD Sediments (Draft Remedial Action Proposal; CRG, November 2006), Appendix A, for a more detailed description of this study.]

With regard to the comment suggesting that because anaerobic sediments are a precondition for methylation of mercury, the potential for generation of methyl mercury should be greater in deeper areas of the lake where overlying water dissolved oxygen levels are low, it is noted that although it is true that anaerobic conditions in the sediment are necessary, it is not the only factor for methylation. The data suggest that environmental and geochemical factors, such as proximity to shore and organic carbon content, are important factors affecting methyl mercury concentrations in Pompton Lake. Indeed, the empirical data from studies at this site supports that the strongest correlation is between methylation and proximity to shoreline. This suggests that, in addition to mercury concentration, the location of samples and other factors should be considered in deciding which areas should be subject to dredging/removal. In fact, the Response to Comments 9 and 12 further discusses factors utilized in the multiple lines of evidence approach that established those areas of the PLSA subject to dredging/removal.

37. Radioisotope Dating of Sediment

COMMENT:

There was a comment that inquired why radioisotope carbon dating was not conducted to estimate the age of the sediment. The implied use is to identify the source of mercury in the sediment.

RESPONSE:

Radioisotope dating on sectioned cores was in fact employed during the remedial investigation and discussed in the Draft Remedial Action Proposal, Appendix B, dated November 2006. Isotope dating was conducted on two sediment cores -- cores E and C-34.

The result of radioisotope dating correlates the lowest sediment layer to the year 1906, which is the approximate year the lake was flooded with the maximum mercury concentrations measured in sediment collected from core depths that correspond to a time horizon of approximately 50-55 years ago. Sediments above the highest mercury concentrations have been deposited in the last 50 to 55 years and a comparison of these results show that sediment deposition rates in the Delta have been variable over time and space (within the Delta) but show an increasing trend with time. The C-34 core (collected at the center of the Delta near the 800-foot radius) shows a generally increasing rate of sediment deposition that approaches 0.21 g/cm²/year over the last eight years. In contrast, Core E (collected near the western shore of the Delta) shows a recent decrease in sedimentation rate over the last 16 years, with rates currently approaching 0.14 g/cm²/year. The overall gradual increase in deposition rate may be, in part, due to changes in land use in the watershed.

Radioisotope dating will be used in the on-going remedial investigation and monitoring, if necessary. However EPA has concluded that mercury in the lower Pompton Lake is overwhelmingly the result of historical discharges from the DuPont PLW and therefore estimating the approximate date of deposition is judged to be less important than comprehensively characterizing the distribution and potential for remobilization of mercury in the Ramapo River/Pompton Lake system so that effective remedial actions can be taken.

38. Use of an Adaptive Management Process

COMMENT:

A commenter requested that EPA employ an adaptive management process to ensure emerging issues can be addressed.

RESPONSE:

EPA will consider an adaptive management approach, where feasible to provide additional certainty of information to support decisions. In general, this means testing of hypotheses and conclusions and reevaluating site assumptions as new information is gathered in order to assess the need to update the conceptual site model.

RESPONSIVENESS SUMMARY

Hazardous and Solid Waste Amendments of 1984 (“HSWA”)
Permit Modification I
E.I. du Pont de Nemours & Company, Incorporated (DuPont)
Pompton Lakes Works (“PLW”)
Pompton Lakes, New Jersey

LIST OF ACRONYMS

for

Permit Modification I, Statement of Basis and Responsiveness Summary

1. ABD – Acid Brook Delta
2. ACO – Administrative Consent Order
3. ATSDR – Agency for Toxic Substances and Disease Registry
4. AOC – areas of concern
5. CAG – Community Advisory Group
6. CFR – Code of Federal Regulations
7. CMI WP – Corrective Measures Implementation Work Plan
8. CMS – Corrective Measures Study
9. COCs – contaminants of concern
10. Cu – copper
11. DuPont – E.I. du Pont de Nemours & Company
12. EAB – Environmental Appeals Board
13. EPA – Environmental Protection Agency
14. ERA – Ecological Risk Assessment
15. Hg -- mercury
16. HSWA - Hazardous and Solid Waste Amendments of 1984
17. LTMP -- Long-term Monitoring Program
18. MeHg – methyl mercury
19. NJDEP – New Jersey Department of Environmental Protection
20. NJDOH – New Jersey Department of Health
21. NJDWSC – North Jersey District Water Supply Commission
22. NJRDCSRS – New Jersey Residential Direct Contact Soil Residential Standards
23. Pb -- lead
24. PCE – perchloroethylene
25. PLCAG – Pompton Lakes Community Advisory Group
26. PLREI – Pompton Lakes Residents for Environmental Integrity
27. PLSA – Pompton Lake Study Area
28. PLW – Pompton Lakes Works
29. PRC – Passaic River Coalition
30. QAPP – Quality Assurance Project Plan
31. RAO – remedial action objective

LIST OF ACRONYMS (continued)

32. RASR – Remedial Action Selection Report
33. RCRA – Resource Conservation and Recovery Act
34. RFA – RCRA Facility Assessment
35. RIR – Remedial Investigation Report
36. SB -- Statement of Basis
37. SWMUs – solid waste management units
38. TCE – trichloroethylene
39. THg – total mercury
40. USFWS—United States Fish & Wildlife Service
41. VOCs – volatile organic compounds
42. WP – Work Plan
43. Zn -- zinc